COAL AGE

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Consumers' Obligations

STABILIZING the bituminous coal industry is as much an obligation on the consumer as it is his privilege. Acute disturbances in the industry, shortage of supply and violent fluctuations in price such as have chacterized the last few years could have been and in the future can largely be prevented. It has been set forth in these columns how the shortage and high prices of this year would have been averted had consumers not so greatly depleted their stocks of coal last year. If each consumer were to carefully calculate for his own plant the quantity of coal experience has shown to be necessary and desirable to have on hand at each period of the year, and then endeavor to maintain that amount in storage, the industry would be as near stable as business can be held.

The public, however, has only begun to learn the basic facts of the coal industry, though but few are untouched by it in their everyday personal and business life. Education over the years to come will be necessary to reach any great measure of the millennium toward which such men as McAuliffe are striving with their various proposals for stabilization. No opportunity must be spared to tell in as many ways as can be conceived and as often as possible, the facts about coal. And men in the industry have much to learn of their obligations in the business.

It must be clear by now that no single remedy will suffice to cure once for all the ailments of the coal industry. The plan for seasonal rates was to have given the urge to store coal in the summer months, but that urge is what caused most of the trouble this summer. Seasonal rates may be good for what ailments the industry may have some summers, but it was not the cure for the ills of the season just closed.

The great need is for quantitative information and education. Senator Frelinghuysen thundered for data during the summer of 1919 and this year he proposed a Coal Commissioner who would get the facts that he found were necessary for a proper understanding of the situation. But this year the Geological Survey, assisted by funds left over from the Bituminous Coal Commission, has given us the essential data, and the trouble has been located and is in a fair way to being cured—without a Coal Commissioner.

The consumer is the one to suffer in a coal shortage. If he can be taught to read the signs of approaching under- or overproduction and if he will but heed the warnings and neither overdelay in purchase nor be overanxious at other times, much of his grief can be warded off. The acumen of a business man who always buys and sells at the right time is praised. Some are dependent on "hunches" to guide them in such matters; others assemble and study facts. More facts are now available regarding coal than ever before and there is less excuse for poor judgment in this market than at any time in the past. The country as a whole has paid dearly for the mistaken policy of burning its stocks of soft coal in the summer of 1919 and New England in particular deserves no sympathy for having in addition made the mistake of not buying at the beginning of this year.

Plainly enough it is the obligation of the consumer of bituminous coal to keep fully informed as to his own requirements and to study the coal situation nationally and locally in order that he may forestall in the future such a situation as arose this year. Mr. Morrow, vice-president of the National Coal Association, addressing a meeting of the Pennsylvania Electric Association at Bedford Springs, Pa., recently said:

"It will be largely up to the public in future whether it is to have the supply of coal it wants, or if crises such as the one through which we have passed are to come again. With the railroads now alert to the exigencies of the coal problem it is to be assumed that there will be no recurrence of the transportation difficulties of this year. If the railroads do their part in future, and the coal consumer, large and small, does his part in arranging for his coal supply sufficiently in advance, while the miner sticks at his work, there will be no danger of another such crisis as that from which we are now emerging."

Labor Saving and Labor Easing

MACHINERY, not being sold, as a rule, to the man who will actually use it, has rarely been recommended on its ability to ease labor; the whole stress has been on the labor that it saves—that is, the number of men it has the ability to lay off. Consequently machinery has never had a benign look to the workman, who, seeing that it might involve a temporary lay-off, could less obviously realize that in the long run he could find the condition more than corrected by an increase of production which would inevitably find one or more places for him. Moreover, even temporary idleness is likely to make the workman unfriendly to labor-saving machinery.

The farmer has a different view of machinery from the mechanic. As he has to use the machine that is to be sold him, care is taken to show him that it will ease his toil as well as save in operating hands, and had it not been that the farmer's pockets have been in the past most generally empty and his knowledge of machinery nearly nil, he would have been most enthusiastic in favor of mechanizing his farm, for he has the constant realization that more machinery means easier work.

The shortage of labor has made labor-saving machinery less likely than ever to lay workingmen idle even for a day and it has made labor more determined than ever not to exert itself when such exertion is unnecessary and often when the expenditure of energy cannot be avoided if the job is to be done.

Labor therefore has a somewhat different attitude toward machinery from that which it held in the past. Is the laboring man about to swing over from the point where he opposed machinery to the point where he demands it as a right? There seems some such possibility. He is beginning to see that much of his labor is the outcome not of the necessities of the case but of sheer lack of thought and equipment, and he is ready to welcome an era when his labor will be merely to put in motion and watch the forces of nature and not to be the force of nature himself, as in the past.

The change that he opposed he is beginning to welcome. He will seek it still further if care is taken that every man displaced is given congenial labor that will convince him that machinery is not merely a displacer of labor but its replacer.

The interesting quality about the operation of machinery is that the operative likes to see it working and has no desire to see it lag. The designer of the machine can set the pace, and the operative will never complain unless perhaps that it has not been set to operate faster. The machine decides the speed at which the work shall be wrought and the man at the wheel is wishing all the while that it had powers of greater accomplishment. That quality of the director of the forces of nature can be held as axiomatic. The laborer may set a limit on the amount he wants to do, but the operative at a machine, provided it does not demand labor, will drive it always at its limit unless most stringent rules are made that he shall not crowd it beyond its capacity.

Machinery therefore produces a change in psychology in the individual. It changes a shirker into an industrious worker. It may utterly spoil him for further laborious work, but so long as the machine is to his hand and he is kept to his task by the terms of his contract, he will operate the machine to its limit and be little pleased if he is asked to forbear and be a little careful for the machine's sake. With the machine he becomes a master; with the tool, as he has to supply the labor, he is the servant. It is the machine which changes him from one to the other, and gives him, as far as the work is concerned, the class consciousness of the employer rather than that of the employed.

Jury Prices and State Commissions

PRICES for bituminous coal set by a grand jury in Kentucky and control of production, distribution and prices by a commission in Indiana are the latest developments in the political horizon of the coal man. Prices on coal produced in Kentucky ranging from $4.30 to $5 per ton were recommended by the grand jury in Covington, Ky., in its report to U. S. Attorney Slattery. This jury had been called to investigate alleged profiteering in coal in eastern Kentucky, and during the course of its work examined the books of hundreds of producers and distributors of coal mined in the state and heard the testimony of the men in the business. The jury reported finding that excessive prices for coal have been charged by the operators, and further states that the prices fixed by the jury (p. 768) are fair and reasonable. It has been intimated that if the prices are not in future exceeded prosecutions for previous offences may be delayed or postponed indefinitely.

In northern West Virginia similar action appears to have been forestalled by the request of the operators for opportunity to correct the price level without Federal interference.

In Indiana the law creating a commission to regulate the industry within the state is in effect and has withstood the first legal attack against it—an attempt to stay the activity of the commission by injunction. Reports from Birmingham are that a form of state control is being pressed for Alabama, and the Governor of Alabama has threatened to take over the coal mines for the benefit of the people of his state.

These are indications of the troubled waters through which the coal industry is sailing today. The industry having held off actual Federal control this summer still faces what some loosely term nationalization—if for no other reason, because all the self-regulation so far has not effected a lowering of prices. The National Coal Association, it is reported, will take a hand and assist the operators of Indiana in having the law tested out before the U. S. Supreme Court. This is as it should be—the industry as a whole is concerned, and the law if constitutional in one state may be expected to be tried out in others.

According to Rush Butler, general counsel for the National Coal Association, the court in dismissing the application for injunction apparently based its action on the ground that though portions of the act might be in violation of constitutional rights, relief could not be granted until the commission had entered an actual order, the effect of the enforcement of which would be to impair contracts or otherwise to deprive one of rights and privileges guaranteed by the constitution.

Mr. Butler goes on to say: "The interesting and at the same time the alarming feature of the opinion of the court is that while no state in the United States has heretofore attempted any such regulation of a concededly private industry it is apparent that the exercise of price-fixing and other regulatory powers by the Federal Government during the war has made such an impression as to lead the court seriously to consider whether the exercise of those powers by the several sovereign states during times of peace may not be nothing more than the exercise of the portion of the police power not delegated by the states to the Federal Government.

"Perhaps I should not have used the word 'alarming' in speaking of this opinion for, after all, the laws which govern us, whether municipal, state or federal, merely reflect the mind and will of the people, and the courts' duty is merely to interpret and apply these laws.

"Accordingly, if it is the will of the people that such laws be enacted it is clearly within their power by constitutional amendments, if not otherwise, to authorize the enactment of statutes similar to the one referred to. However, the opinion of the court may well give alarm to the coal industry, if for no other reason than that that industry and no other is singled out for price-fixing and regulation in this particular piece of legislation."

Coal Cars Return More Promptly

The Car Service Division of the American Railroad Association has issued a report on the return of coal cars to home lines. From March 1 to Sept. 1 coal cars returning to home roads have made a gain from 22.6 per cent to 33.8 per cent. Coal cars, however, show losses in the three Western districts.

To Ration Coal in Providence

Residents of Providence, R. I., are to be placed on a coal ration until such time as the supply of fuel becomes more plentiful. This was decided upon Sept. 24 at a conference of coal dealers called by Mayor Joseph H. Gainer. A committee of dealers and citizens will work out the details of the plan, with the end in view of assuring all families at least a partial supply of fuel before cold weather.

Coal Roads Get Government Loans

Loans have been authorized by the Interstate Commerce Commission to these two important coal-carrying roads to enable them to purchase additional equipment and improve facilities: $2,000,000 to the Virginian Railway Co., to aid in extending its facilities to adequately handle its rapidly increasing traffic, and to the Western Maryland Railway Co., $1,372,800 to aid in purchasing twenty Mikado freight locomotives at a cost of $1,500,000, and in making additions and betterments to roadway and structures to promote the movement of cars at a cost of $622,800. The Maine Central will get $653,000 and the Ann Arbor R.R. $250,000. The commission also has approved a security issue of $2.400,000 by the Pittsburgh & Lake Erie R.R. to enable it to procure 1,375 cars of the 55-ton all steel hopper type at a cost of $3,508,-300.

Alabama Seeks Coal Legislation

A bill was introduced Sept. 23 in the House of Representatives of the Alabama Legislature, authorizing the Governor of Alabama to make contracts with coal operators for supplies for the use of the public in averting coal famine and appointment of a fuel administrator to control distribution of the tonnage contracted for by the Governor. The bill would, therefore, give the Governor the authority to establish fair prices.

Lackawanna May Get B., R. & P.

William H. Truesdale, president of the Delaware, Lackawanna & Western, has refused to comment on the reported acquisition of the Buffalo, Rochester & Pittsburgh, but it was learned in authoritative quarters that to date no offer for the B., R. & P. properties has been made by the former company. Acquisition of the B., R. & P. by the Lackawanna would bring to the latter a splendid opportunity to handle a heavy bituminous coal tonnage, and in conservative railroad quarters it is believed such a consolidation would make for the improvement of both companies.

Report Increase in Efficiency of Railroads

Encouraging results are reported by the railroads in their efforts to get more service out of existing transportation facilities. The current number of *American Railroads*, issued by the Association of Railway Excutives, covering reports from twenty-seven principal roads, shows that the roads are moving more freight more miles a day than ever before; that they are reducing the number of cars in bad order and they are not only getting heavier loading per car, but are securing, through the co-operation of the shippers, quicker loading and unloading. The amount of freight handled by the railroads of the United States in August, 1918, was 7 per cent greater than ever before in that month. But in August, 1920, the railroads moved more than 4,000 carloads in excess of the 1918 record.

NEWS BRIEFS

Terse Items Chronicling Events of Interest to the Industry

Brooklyn Goes After Profiteers

The Flatbush Chamber of Commerce, of Brooklyn, N. Y., has appointed a committee to investigate a complaint that 75 per cent of the residents of the Flatbush section of Brooklyn have been unable to lay in their winter supply of coal. The committee also will look into an accusation that coal men are charging as high as $30 a ton. Prosecution is promised if profiteering is found.

Oklahoma Governor Threatens to Seize Coal Mines

Governor J. B. A. Robertson of Oklahoma telegraphed to the Interstate Commerce Commission Sept. 27 that the coal situation in Oklahoma was serious and that if necessary he would "not only take possession of the mines but also take sufficient cars and engines to distribute the necessary fuel."

Rich Coal Fields Found in Spitzbergen

The Christiania *Aftenposten* learns from Spitzbergen that new and rich coal fields have been found at King's Bay. The fields are said to cover an area of 150 square kilometers. The quality is like the ordinary English coal. The proprietors of the new fields are the King's Bay Coal Co. of Aalesbund.

Railroads Report Operating Deficit for July

Major railroads of the country recorded a deficit of $6,653,420 in operating income for July, compared with an operating income of $80,-325,481 in July, 1919, according to a summary issued Sept. 29 by the Interstate Commerce Commission. For the seven months ended with July the operating income of the roads was $26,200,730, as against $252,952,359 for the corresponding period of last year. Operating revenues of the roads for the month amounted to $528,132,986, compared with $455,280,142 in July, 1919, while operating expenses totaled $511,773,-300, against $358,891,812 for July of last year. Deductions for taxes and uncollectible accounts produced the deficit.

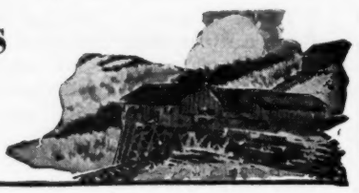
47,363 Tons of Coal "Makes" Panama Canal in July

Movement of coal in cargo lots through the Panama Canal during July totaled 47,363 tons. All of the coal orignated at Hampton Roads. With the exception of one cargo, which went to Balboa, Panama, all of the fuel went to Chilean ports. A cargo of fuel briquets moved from Norfolk to Iquique. A cargo of coke moved from Baltimore to Valparaiso.

British Coal Strike Unlikely

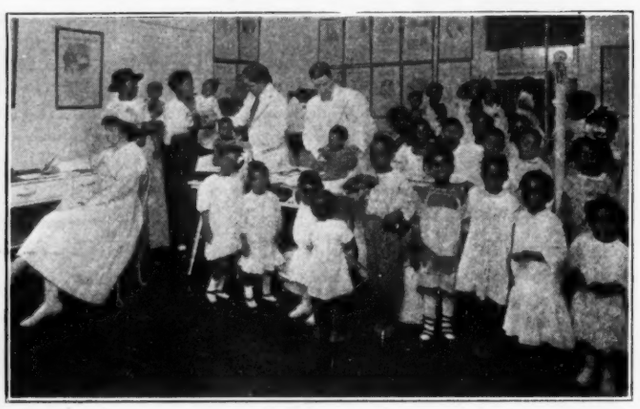
A strike of British coal miners is now believed unlikely as a result of a decision taken Oct. 1 to call for a re-ballot by the miners on the question of ceasing work. The result is expected to be an acceptance by the men of an offer by the owners of an advance in wages of 2 shillings per shift when the output of coal reaches 248,000,000 tons yearly. This was the rate of the output for the first three months of the present year. The coal strike notices which were effective Oct. 2 have been postponed for another fortnight. This action resulted from a conference between Premier Lloyd George and representatives of the miners and owners.

Through the Coal Fields With a Camera



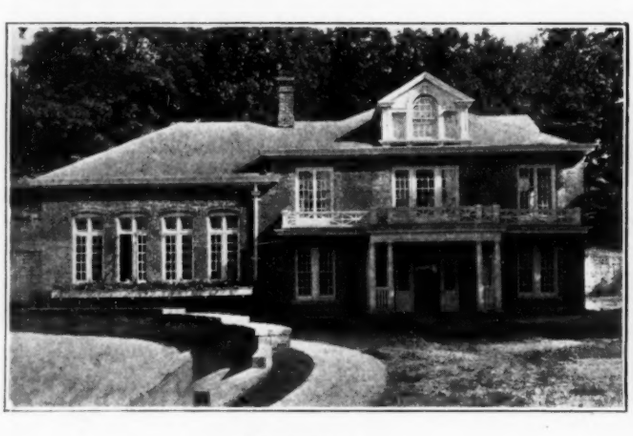
Welfare Work in Alabama

Progress Made by Tennessee Coal, Iron & Railroad Co., at Some of Its Plants

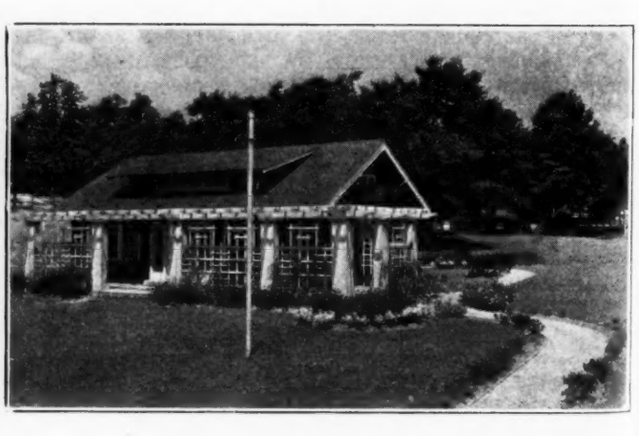


Medical Attention
INTEREST IS SHOWN IN PHYSICAL DEVELOPMENT OF THE MINERS' CHILDREN AT DOCENA

Health
CENTRAL HOSPITAL AT FAIRFIELD IS ABSOLUTELY FIREPROOF



Recreation
EMPLOYEES' CLUB HOUSE AT MUSCODA

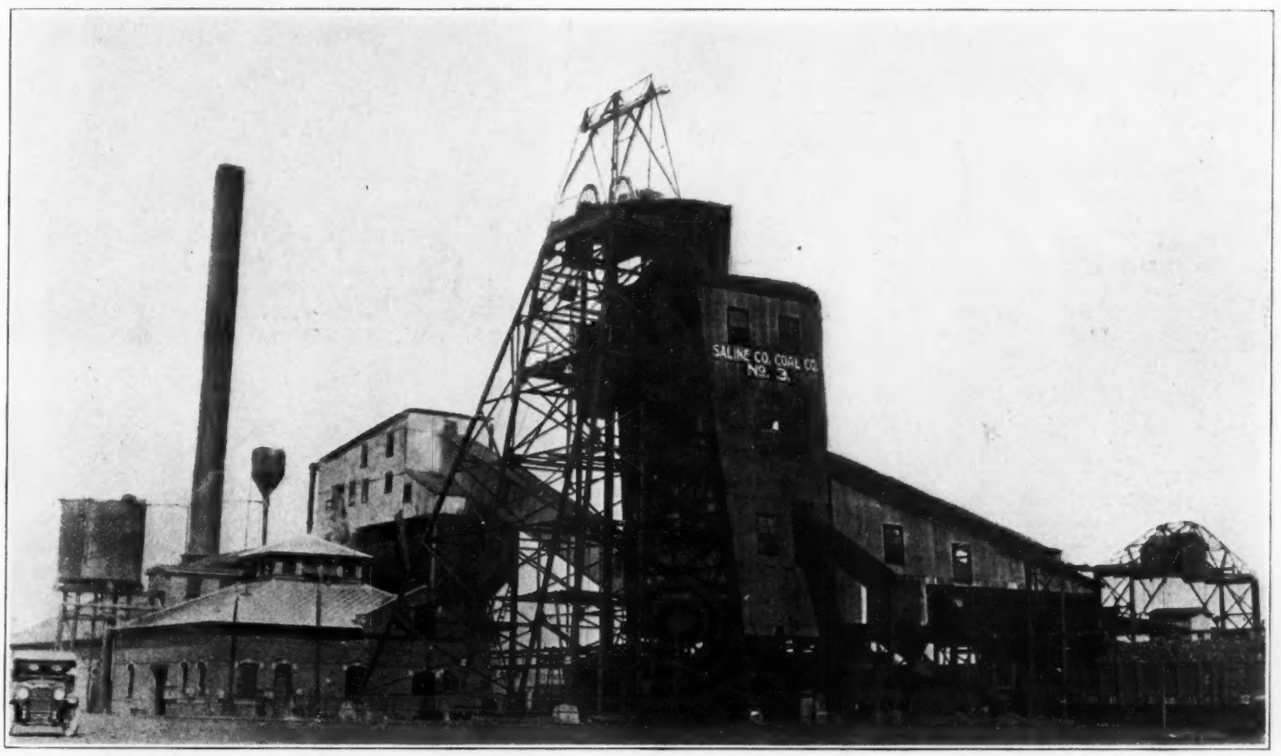


Education
KINDERGARTEN AT EDGEWATER

Illinois Mines Guard Their Timbered Shaft Bottoms by Fusible-Plug Sprinklers

State Statutes Demand the Elimination of Fire Hazards Below Ground —To Secure This Protection One Operator Uses Fusible Fireplug Sprinkler Heads on Pressure Lines Containing Rain Water Only

BY DONALD J. BAKER
Wilkinsburg, Pa.



GENERAL VIEW OF NO. 3 SURFACE PLANT, SALINE COUNTY COAL CO.
On the extreme left is the tank containing the water used in the underground sprinkler system. A 4-in. pipe carries this water down the shaft.

MINING law in Illinois probably demands more of the coal operator than does the law in any other state in the Union. More particularly is this true of those portions of the statute which deal with reducing fire and explosion hazards. Doubtless this is well, and as it should be, for as a rule the mines in that state are drier and consequently present greater hazards than are faced in other coal-mining districts.

FIRE HAZARDS NOT ALL IN SHAFT LANDING

To reduce the hazard of dust explosions some form of sprinkling system is adopted in order that the floor may be kept damp, the roof and ribs being periodically washed down to remove coal dust from all projections. Where the shaft bottom is timbered, as is a quite general condition, precautions must be taken to protect it and the shaft from the effects of a disastrous fire. As a safety provision many of the mines have installed a network of piping with sprinkler heads fitted with a plug made of a readily fusible alloy which will melt in case the temperature rises above an accurately predetermined figure.

It is practically impossible to eliminate entirely fire hazards around the bottom, for even in the newer operations, where steel and concrete construction is extensively used, there will in all probability be a mule barn to be protected as well as a machine and repair shop where timber, oil and waste are used or stored. No matter how small the hazard existing, if it be a hazard at all, protective measures must be taken. This much the state demands. Whether or not the measures are legally adequate depends, of course, upon the viewpoint of the visiting inspector.

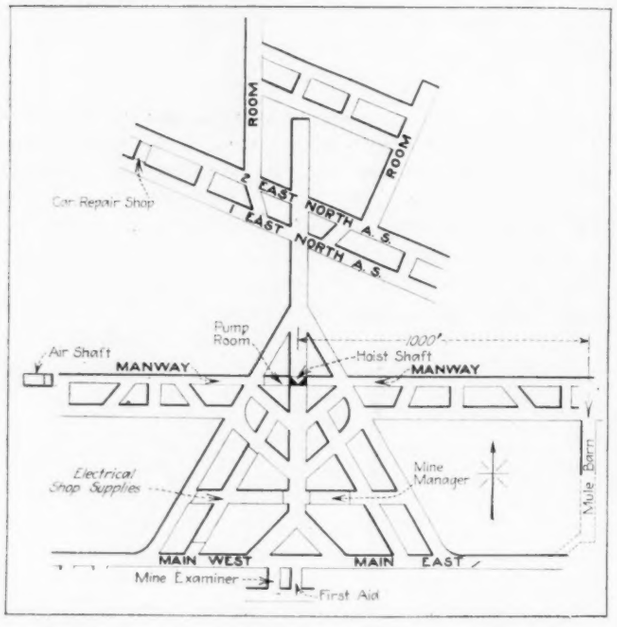
At the bottom of the No. 3 mine of the Saline County Coal Co., which is situated in the southern end of the state, over 2,000 ft. of 1½- and 2½-in. pipe composes a sprinkling system where are installed 75 fused fireplugs to protect the timbered sections in the immediate vicinity. Construction plans call for an additional installation of nearly as much pipe as is already in use. This concern contemplates the building of a mule barn similar to the one illustrated, which is located in its No. 6 mine. As shown by the accompanying drawing, this room will be distant about 1,000 ft. from the

DISTRIBUTING LINES CONNECTING WITH THE MAIN

In this illustration one of these lines controlled by a valve may be seen leading away from the shaft

shaft bottom. Each manger will contain a fireplug so that it will be extremely difficult for a fire to gain headway.

At the immediate bottom there are at present five rooms containing fire hazards—not hazards as interpreted by many state laws but hazards as the term is



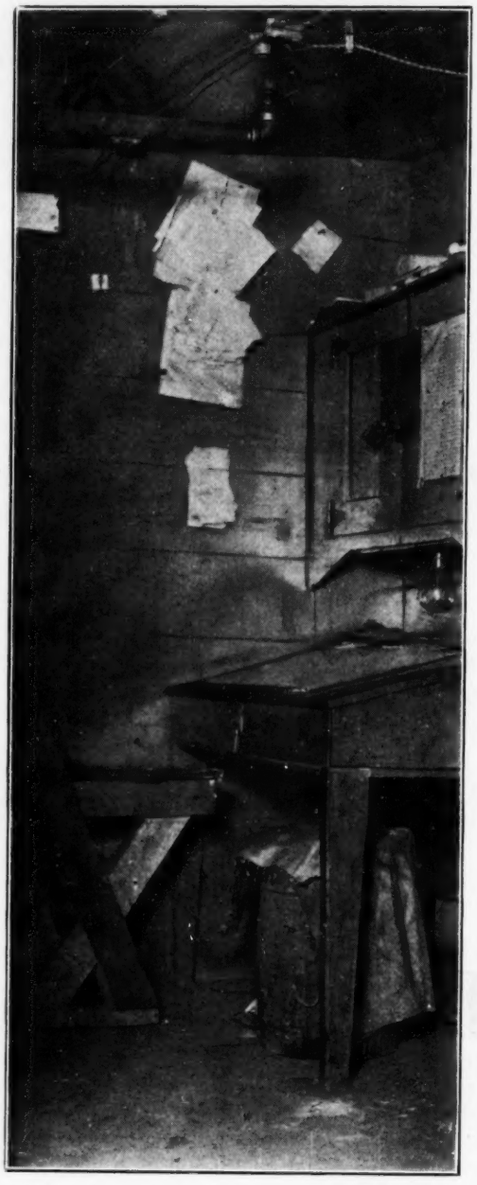
BOTTOM LAYOUT SHOWING POINTS PROTECTED

Some idea may be gained from this drawing of the extent of territory that is or will be covered by the sprinkler system.

construed in Illinois. These are: An electrical supply and repair shop, a car-repair shop, a first-aid dressing station, a mine manager's office and a mine examiner's office.

Each of these chambers contains an overhead arrangement of pipes and fireplugs that bespeaks immediate extinction for any fire that might break out.

The utility of this system once it is installed is manifest—no further attention need be paid to it, while the



MINE MANAGER'S OFFICE PROTECTED

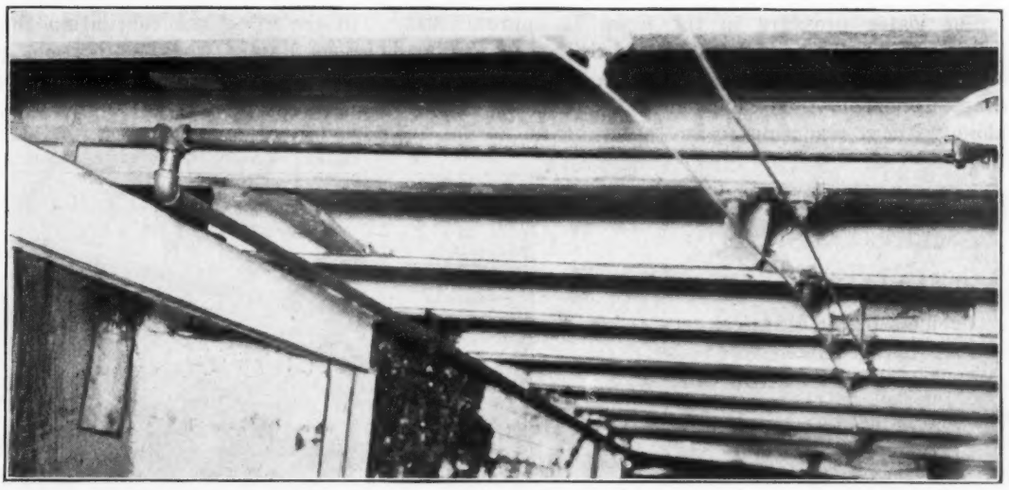
One fused fireplug, seen in the upper center of the illustration, protects this small room.

first cost of installation is the only one, as there is no continuous overhead expense. Like watchdogs of the night, the plugs stand guard over inflammable material, and convey a businesslike impression of pent-up or potential efficiency. Never in the way of operation yet always on the job, these plugs inspire a feeling of security that is reassuring.

In the extreme left of Fig. 1 can be noticed a large tank supported on steel legs. This container, 11 ft. in diameter and 12 ft. high, holds the water that feeds

Distribution Line in a Heading

Bracket suspension from I-beams is practiced wherever possible. Such suspension may be here plainly seen.



the network of pipes around the bottom of the shaft. Nothing but rain water is permitted to enter the pipe line in any part of the system. This is collected at a reservoir on the surface and then pumped to the tank shown in the illustration, which is always kept filled.

Mine Water Would Cause Clogging and Rust

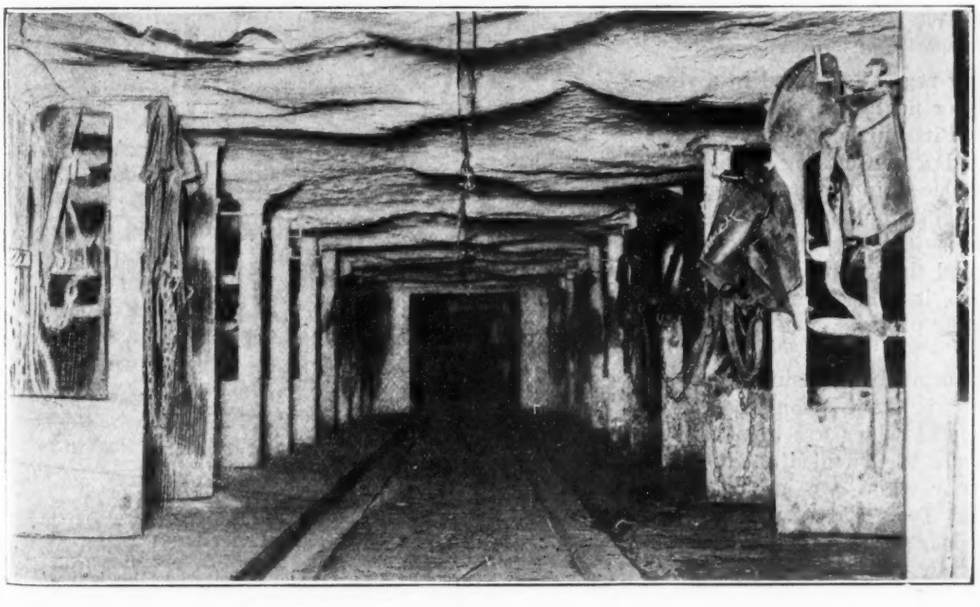
Mine water with its sediment and acid content cannot be used in a system of this kind, for while it is unlikely that the plugs will ever be called on to deliver water, yet should the occasion arise, the need will be both immediate and vital. Utilization of the water from the underground workings would in all probability cause rusting and clogging of the pipe lines and might so impair the entire system that it would be of small account when put to the test.

A 4-in. main leads from the tank on the surface down the shaft to the bottom. At this point 2½-in. leads are tapped off. No fixed method is followed for suspending these latter pipes from the roof, as the type of overhead construction varies. When the line is beneath an I-beam construction, a bracket fixture is attached by a bolt to the lower flange of the beam. This carries the pipe in a jaw. When passing beneath timber several strands of wire encircle the pipe and securely hold it in place. The 2½-in. lines run directly to the room containing the hazard. Wherever this pipe is suspended from the roof, a valve is provided at 100-ft. intervals so that a connection may be quickly made for a 2-in. hose line. Thus, if the plugs do not suffice to keep a fire under control, adequate means are provided for fighting it by hand. One-and-a-half-inch pipe is connected to the larger size at the room entrance and the fused plugs are attached to this smaller size.

Gives Fine Spray Covering Large Area

The plugs have an umbrella-shaped hood, the cap of which is held in place by a fuse composed of an alloy of low melting point. Any unusual amount of heat around the plug will melt the fuse, release the cap and permit the water under pressure in the pipe to escape. In doing this it strikes the hood and is deflected, so that the resulting spray is not unlike that from a shower head. The stream of water will persist until the valve controlling that particular line has been shut off.

In connecting plugs to the overhead line one is installed wherever a fire hazard is encountered. The greater the hazard, the larger will be the number of plugs assigned to cover it. In the smaller rooms, such as the mine manager's office, shown in one of the accompanying illustrations, a single plug is considered sufficient protection, while above the workbench in the electrical repair shop the plugs are connected to the pipe at intervals of only a few feet.

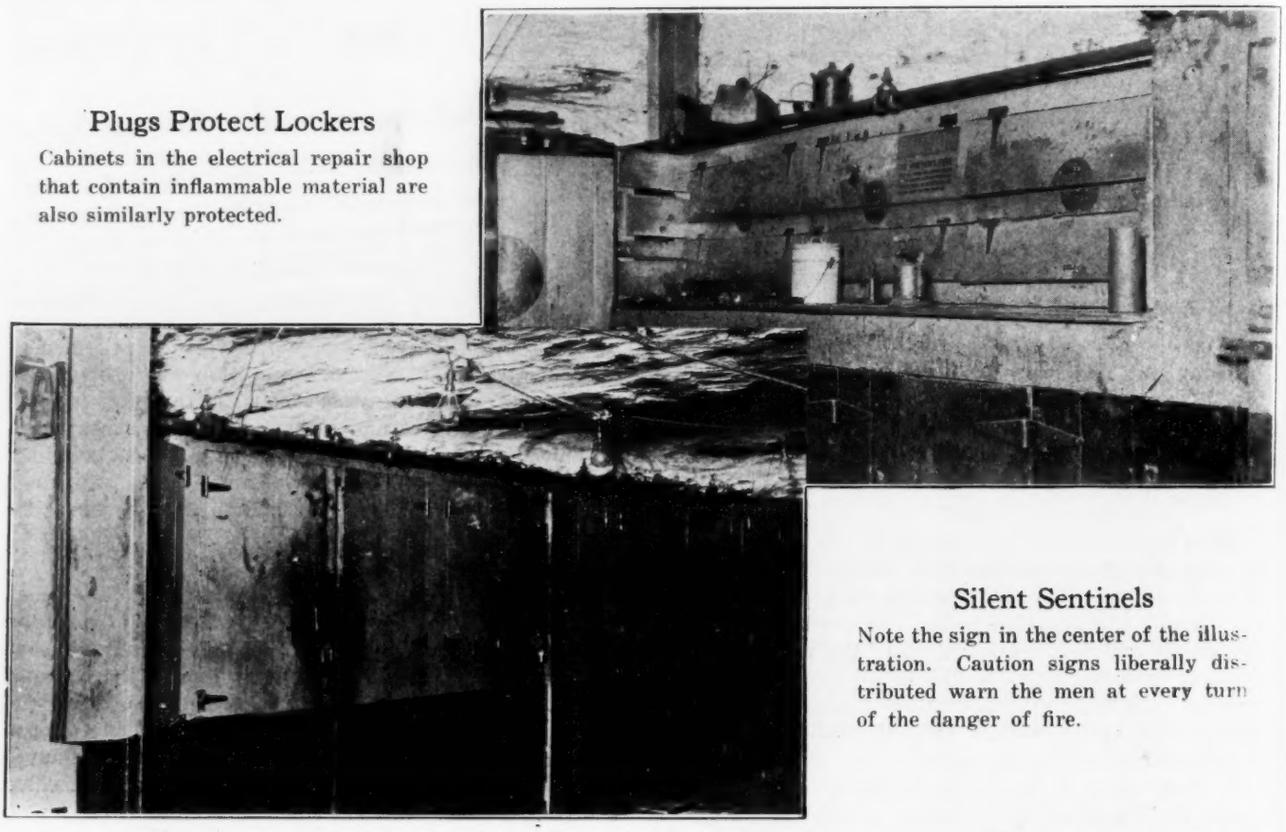


Type of Mule Barn Under Construction

When completed each manger will be provided with a fireplug giving the mine stock ample protection.

The water pressure in the pipes is approximately 140 lb. to the square inch. This is attained by the head on the line coming down the shaft, which is 270 ft. deep. There is thus sufficient pressure from gravity alone without resorting to any pumping units.

in the mine, the ventilation should be good and a fire once started would gain rapid headway. It is to forestall any such contingency that such a system as this is resorted to. If "an ounce of prevention is worth a pound of cure" such a sprinkler system as this with



Plugs Protect Lockers

Cabinets in the electrical repair shop that contain inflammable material are also similarly protected.

Silent Sentinels

Note the sign in the center of the illustration. Caution signs liberally distributed warn the men at every turn of the danger of fire.

It is a maxim among mining men that "the shaft is the neck of the bottle." It is accordingly decidedly vulnerable and any accident that cripples it cripples the entire operation that it serves. Here if anywhere pressure constantly on the mains and the sprinklers waiting only a comparatively small increase of temperature to let loose their sprays where they will do the most good, should prove highly efficacious.

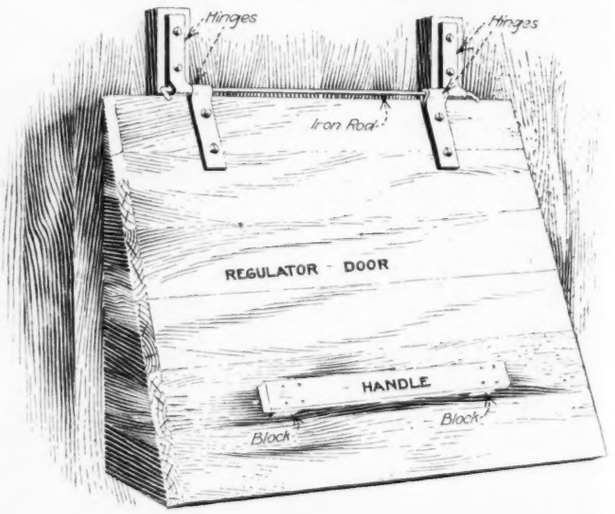
Regulator Door Which Will Close Itself Unless It Is Propped Open

By Ralph W. Mayer
California, Pa.

THE old orthodox sliding regulator placed in a stopping may be carelessly or negligently left open. To obviate this difficulty the Pittsburgh Coal Co., in its Crescent mine, has adopted a self-closing type. The frame for this device is placed in the stopping with its lower edge extending slightly outward, and the door itself is hinged at the top. Gravity thus closes the door when it is released, and the air pressure forces it against the frame and holds it securely in place. Thus unless the door is deliberately propped open it will close automatically.

Four strips of iron of suitable dimensions serve as hinge straps. These may be bent upon themselves around a ½-in. rod the ends of which are then bent at right angles. The straps are then drilled and two are spiked to the regulator door while two are spiked to the frame in the stopping. Two cleats nailed in place near the lower edge of the door with a small strip across them form the handle whereby the door may be opened.

The extreme simplicity of this arrangement is at once apparent. The advantage of a door that naturally and automatically tends to closure will appeal to mining men.



REGULATOR AND ITS SLANTING FRAME
Gravity swings this door shut and the air pressure holds it in place. A simple handle makes opening easy when this is desirable.

Pennsylvania Mining Town Constructs Its Own Sewage-Disposal Plant

Open Sewers Breed Bacteria and Invite Disease—Langeloth Passes Its Sewage Through a Disposal Plant That Yields Two Products, One a Colorless, Odorless, Harmless, Bacteria-Free Water, and the Other an Excellent Germless Fertilizer

By Donald J. Baker
Pittsburgh, Pa.

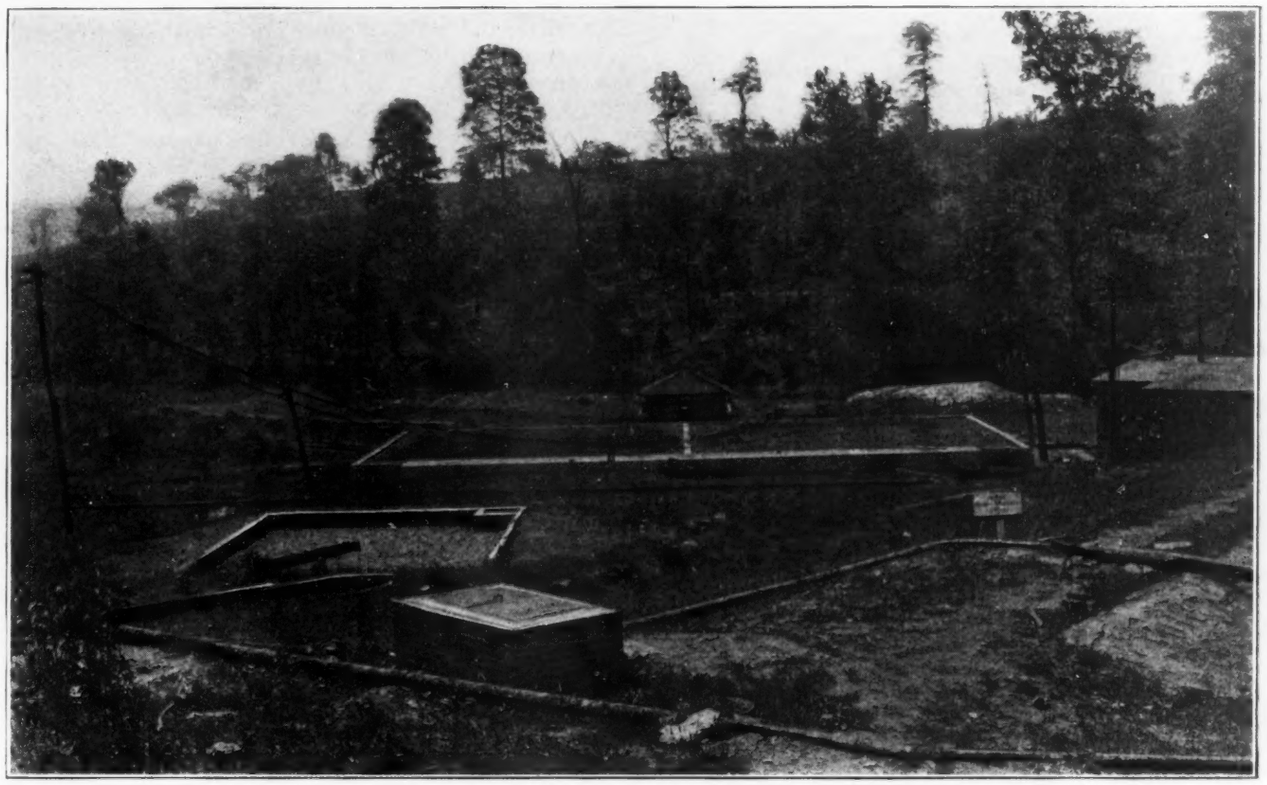


FIG. 1. GENERAL VIEW OF SEVERAL UNITS OF THE DISPOSAL PLANT
Here may be seen the sludge and filter beds, disinfecting house and resettling basins. It is planned to inclose the entire plant with a fence in the near future.

At the town of Langeloth, in Washington County, Pa., where are housed the coal miners and mill workers of the American Zinc & Chemical Co., can be found one of the most effective and most easily operated sewage-disposal plants in the Keystone State. This assertion is borne out by the health department of that Commonwealth. No expense has been spared to make the town not only highly attractive but one wherein good health may reasonably be expected to be the lot of the inhabitants.

This community boasts a population of 1,350, which is somewhat less than it was five years ago. Not an outhouse can be found in the entire town and yet the sewage of the village is not directed to some near-by stream to contaminate its waters and furnish a new breeding ground for bacteria of all kinds. Sewage from each house is collected into a 10-in. sewer, and thence directed to the disposal plant by gravity. The only product of the works to enter a surface stream is a clear and odorless water.

The sewage-disposal plant is located about half a mile from the town. At a distance of 300 ft. away from the point where the pipe carrying the town refuse enters the first unit of the plant—the Imhoff tanks—a screen chamber has been constructed in which sticks and other foreign matter that will not permit of early digestion in the sludge chamber of the settling tanks are caught to be removed later and buried. Fig. 4 is a view of the twin Imhoff tanks. The main line coming from the town is bifurcated, and a separate pipe line delivers the collected sewage to each of the two tanks.

Upon entering the tanks the sewage strikes a baffle board that serves a double purpose. In the first place the water in the main portion of the settling chamber must be kept placid at the surface in order to insure rapid digestion of the organic material lying at the bottom. The baffle serves to direct the incoming sewage away from the body of water that must lie undisturbed if the tanks are to function effectively.

The second purpose of the baffle board is to receive the shock of the incoming sewage. In this manner the larger particles carried in suspension strike the board with some little force and are partly disin-

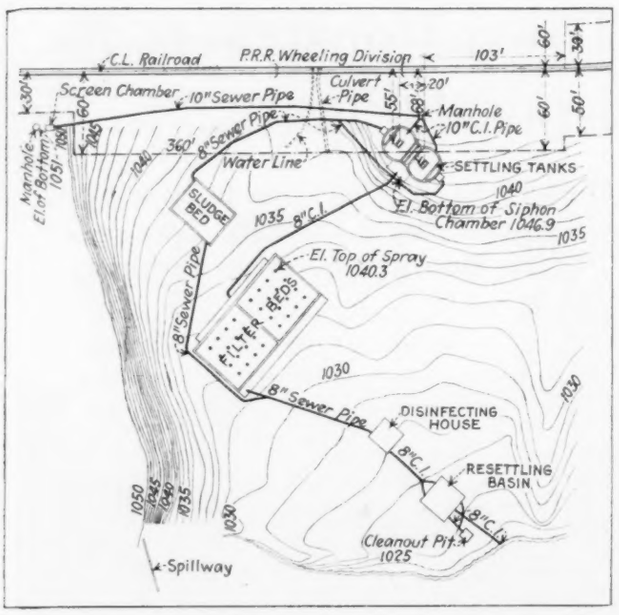


FIG 2. PLAN SHOWING ARRANGEMENT OF UNITS
Comparative distances as well as ground contours are here indicated.

tegrated or broken up. This is advantageous, as there are then fewer air spaces contained in the fecal matters and these solids consequently sink to the bottom much more quickly.

As is shown in the diagrams, the incoming sewage must first pass down and around the concrete retaining walls, or through a vertical distance of about 13 ft., before it can gain entrance to the sludge chamber. This latter is circular in shape and has an inside diameter of 16 ft.

The most interesting portions of the entire plant are, of course, the Imhoff tanks, which include settling, sludge and siphon chambers. The incoming solid particles contained in the water drop to the sludge chamber, after disintegration has been started by the baffle board. They are deposited on top of the accumulation already in the chamber. A 20- to 24-ft. head of water is maintained above the sludge. This arrangement is necessary if the fecal matters are to generate gas and rapidly digest. The digestive process is slow but in the end the bacteria perish, for after feeding upon all sustaining matter in the sludge they feed upon themselves, and in this manner are ultimately destroyed.

In the longitudinal sections of the tanks can be noticed a central receiving gas chamber or vent leading to the surface, the lower lip of which is wing-shaped and projects down and under the concrete wall that guides the incoming heavy particles to the sludge chamber. This furnishes an exit for the gas generated at the bottom of the sludge tank without necessitating its passage through the main body of water in the settling tank. Thus no disturbance is created in the settling chamber and the water pressure on the sludge is evenly maintained at all times.

For the gas that does not pass to the surface through this orifice another exit is provided. This gas may be directed around the concrete wall inclosing the settling tank. If this is the case it comes to the surface outside the division wall of the tanks or next to the outer retaining wall.

The settling chambers of the tanks were so constructed as to adequately handle the sewage from a

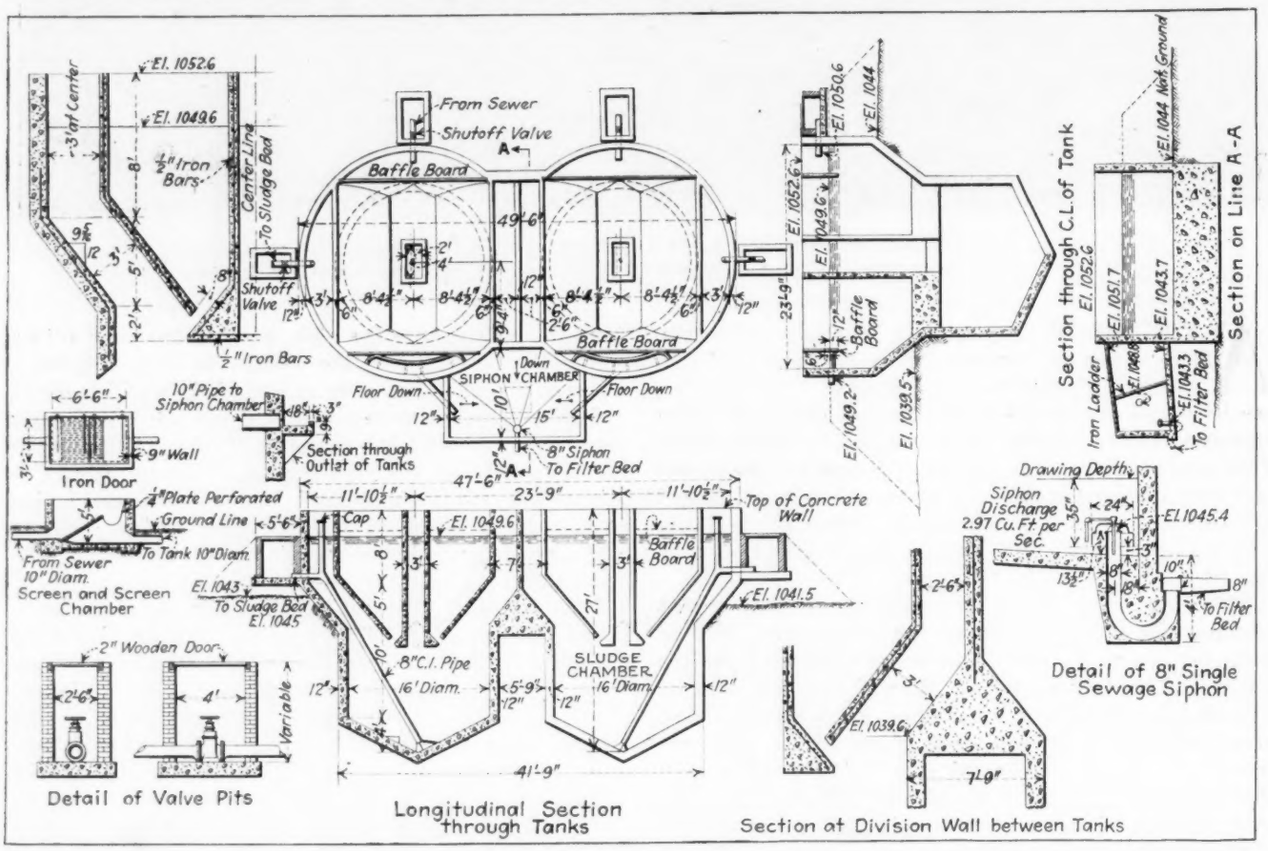


FIG. 3. DETAILS OF THE TWIN IMHOFF SETTLING TANKS
Twin tanks are employed so that one may operate while the other is idle for cleaning or for any other reason

population of 2,500. The per-capita flow was estimated at 70 gal. per day, making a total flow of 175,000 gal.; assuming a steady influx for eighteen hours, approximately 9,720 gal. will enter the tanks each hour. The tanks were designed to accommodate the accumulation of a 3-hour flow before the water content would be entirely displaced. Thus they should have a capacity of 29,160 gal., which is equivalent to 3,888 cu.ft. of space. As a matter of fact a capacity of 4,500 cu.ft. is available.

The capacity of the sludge chamber is 2,800 cu.ft. Computations for the size of this compartment involved the allowance of 0.007 cu.ft. of sludge per capita per day. Approximately 120 days' storage is desired in order that the bacteria in the organic matter may have time to destroy themselves, so that the sludge may be removed to the outside air absolutely harmless. Estimates from the above figures for a population of 2,500 show that only 2,100 cu.ft. of space actually is required. It thus can be seen that the size of this chamber is more than adequate.

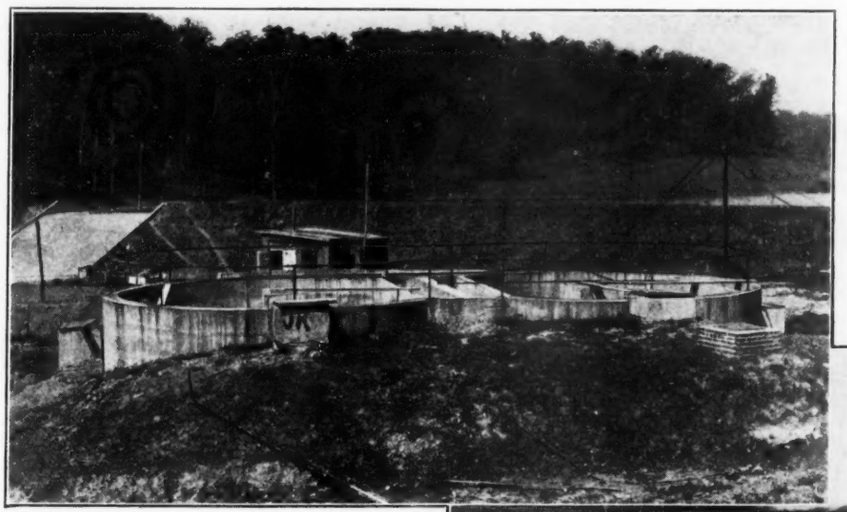


FIG. 4.

Twin Imhoff Tanks

This is a photograph of the tanks shown in detail in Fig. 3.

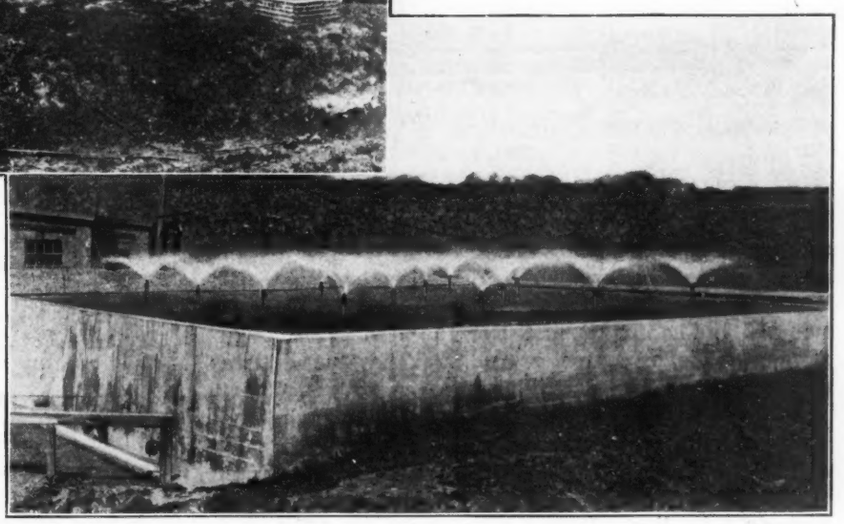


FIG. 5.

Sprays Playing on Filter Bed

Overflow from the settling tanks is distributed by spray over the crushed rock forming the filter.

Liquid Is Voided from Tank by Siphon

Opposite the side of the tank which receives the sewage a second baffle board has been constructed. This serves as an additional safeguard against disturbance of the water in the settling chamber. In the division wall at this point there is an outlet pipe, and water passes out of the tank at the same rate of flow as that at which it enters. It should be remembered, however, that about three hours are required for the water to circulate from one side of the tank to the other.

By the time the water reaches the outlet pipe, it is carrying in suspension nothing but the finest of particles. The outlet pipe leads to the siphon chamber, where the water collects until a pressure has been established that is sufficient to operate automatically a Miller siphon, by which the water is voided to a 10-in. pipe to pass by gravity to the filter beds. When the water in the siphon chamber has been reduced to a level that corresponds with the height of the siphon valve, air enters and the valve closes. It does not operate again until the proper pressure has been set up on the valve by the accumulating water. Under normal conditions the siphon makes three discharges hourly during the day. At such times 8 gal. of water are passed per second for a period of 5.6 minutes. The head of water required to operate the valve is 2.5 ft.

The filter beds are in duplicate, like every other unit of the plant. This arrangement permits any half of a unit to be closed down temporarily for repairs. When the water arrives at the filter beds it is directed into an 8-in. cast-iron main. At the entrance to the beds two shut-off valves are provided, so that the entire flow from the siphon chamber may be directed through either bed. This is a highly desirable arrangement, as the broken stone which acts as the filtering agent should be frequently cleaned and aired.

Idle Filter Bed Aired for Days in Sun

One of the most effective methods of cleaning the stones in the bed is to permit them to be exposed to the warm sunlight for several days. When this is being done the work of filtering is thrown entirely upon one bed. Each bed receives the water from the siphon chamber through four 4-in. lines. Four 2-in. riser pipes are connected to each of the 4-in. pipes. The upper end of each riser pipe is fitted with riser connections and a circular spray. These fixtures were supplied by the Pacific Flush Tank Co.

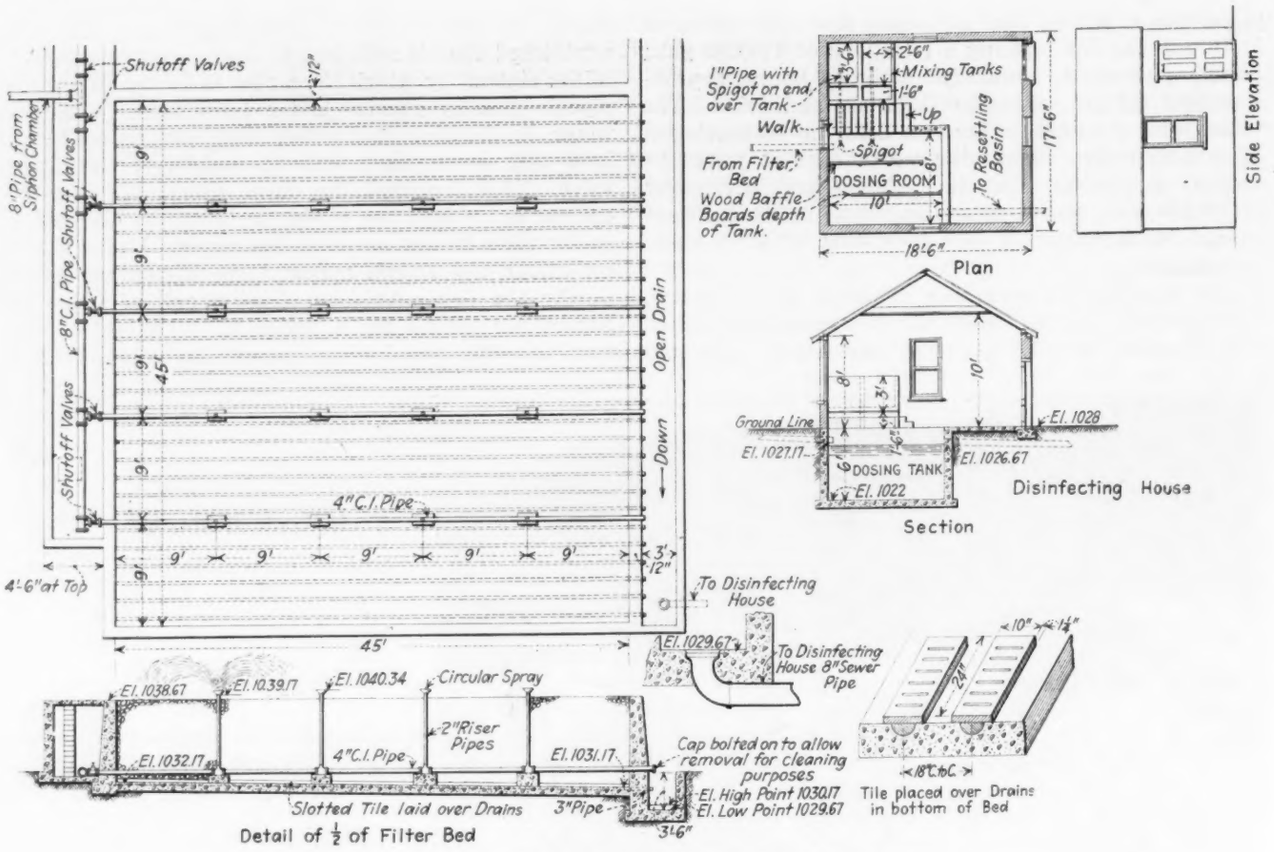


FIG. 6. DETAILS OF FILTER BED AND DISINFECTING HOUSE
Drains below the filtering medium are protected by slotted tile.

Each filter bed, which is 45 ft. square, is filled to a depth of 7 ft. with 1½-in. broken stone. Over the bottom of the bed, which is of concrete, slotted tile have been placed. These vitrified-clay floor blocks were supplied by the American Sewer Pipe Co. The bottom of each bed is, of course, graded, and the filtered water passes through the slotted tile and enters the drains. These lead to 3-in. lines that pass through the concrete retaining wall, permitting the water to reach the surface. Water from both beds enters the same drain, by which it is directed to the disinfecting house through a single 8-in. line. It was estimated that 4,000 sq.ft. of filter surface would be required for the water. This figure was reached by making a per-capita allowance of 1.6 sq.ft. However, it is apparent that the actual available space is 4,050 sq.ft., or 2.025 sq.ft. per bed.

Filter-Bed Water Dosed with Chloride

The part of the plant which is covered is the disinfecting chambers, which are housed in a brick building. Here the water is treated with chemicals, which must be kept under cover. The water coming from the filter beds enters the dosing tank, where it mixes with a chloride of lime solution that drips from a spigot projecting over the basin. The dosing tank, which is 10 ft. long by 8 ft. wide, is divided longitudinally by two baffle boards. These guide the water so that before it leaves the building it has to traverse a greater distance than if it took a direct course. In traveling through the tanks, which are 5 ft. in depth, any suspended materials not removed by the stones in the filter bed are deposited.

An 8-in. line of cast-iron pipe from the disinfecting house leads the water to the resettling basins. Each of these is 22 x 11 x 9 ft. in dimensions. A separate line makes the connection with each basin. The water enters at a 9-ft. level and leaves at the same elevation. Any suspended material still remaining is now finally deposited before the water reaches an outlet pipe to enter a stream near by.

Sludge Is Emptied Three Times a Year

Let us see what means are taken to dispose of the material deposited in the sludge chamber of the Imhoff tanks, as well as the suspended materials left in the filter beds or later deposited in the disinfecting chambers and resettling basins. After the sludge has stood for about 120 days in the tanks, a valve is opened in an 8-in. line leading from the bottom of each tank. This pipe runs to the sludge beds.

At the bottom of the sludge chamber this line is protected by a steel stool which is composed of ⅜-in. iron rods anchored to the concrete floor. This arrangement prevents any sticks or other foreign substances that may have passed through the grate in the screen chamber from entering the line and clogging it. The water pressure on the sludge is sufficient to force it up into the pipe to a point where it drops by gravity to the sludge beds.

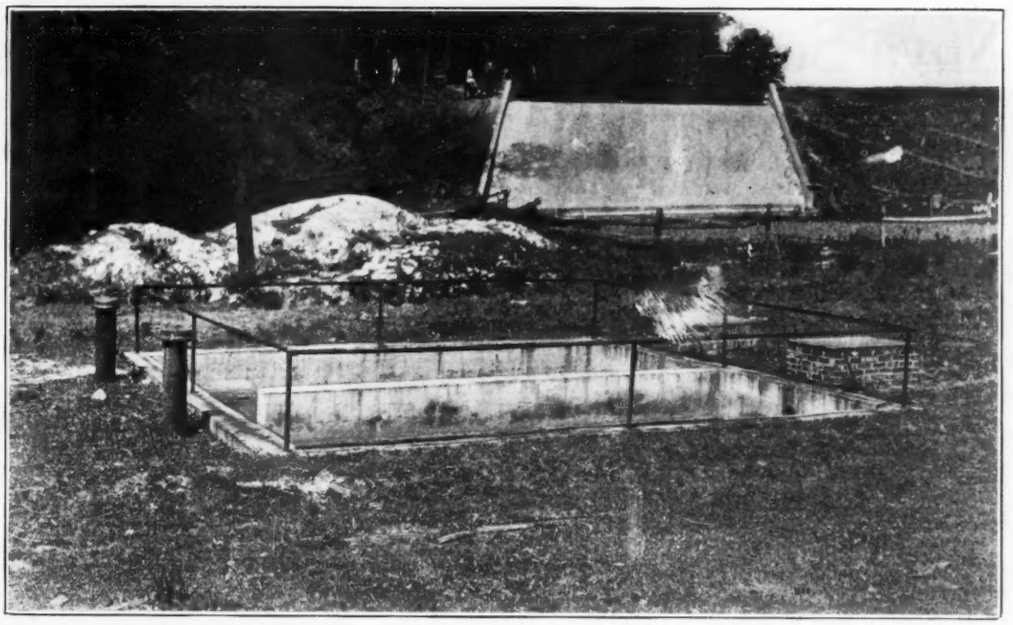
The sludge bed is simply constructed and measures 40 x 30 ft., dimensions which give it an area of 1,200 sq.ft., which is ample enough to supply all needs. The sludge coming from its chamber is in a viscous state and slowly spreads out over the bed, which has been given a slight grade to assist in this movement.

The construction of the bottom of the bed is quite similar to that of the filter beds. The floor is of concrete and supports slotted tile. A portion of the

FIG. 7.

Twins Resettling Tanks

Here the liquid is given its final treatment and the last of the suspended matter removed before the water is turned into a nearby creek.



moisture in the sludge drains off through the cinders forming the bed proper. This collects in one corner and is thence directed to the disinfecting house. The sludge, however, rapidly dries when exposed to the air. While it gives off some slight odor when it enters the bed, it is practically free of bacteria, and after a few days this odor disappears.

Sludge Used by Miners for Fertilizer

The sludge is allowed to stand for several weeks, during which time the surface cracks and permits of a better aëration of the mass. At the end of this time it may be removed by the easiest means available. As it possesses a high nitrogen and potassium content, its value as a fertilizer is high, and for this reason it is readily removed by those in the town inclined toward agricultural pursuits.

At the disinfecting house and at the resettling basins the sediment is collected at regular intervals and removed to the sludge bed to dry and mingle with the product of the sludge chamber.

Northern West Virginia Justice Asserts Company's Right to Evict Strikers

A DECISION has been handed down by Justice of the Peace W. L. Boughner in the eviction proceeding brought by the Connellsville Basin Coal & Coke Co. to obtain possession of several houses belonging to the company at Rock Forge which have been occupied by idle miners ever since July 11, when a strike was declared against the Connellsville Basin Coal & Coke Co. and the Penn.-Mary Co. The miners were ordered to vacate their homes. The justice ordered the defendants to pay back rent.

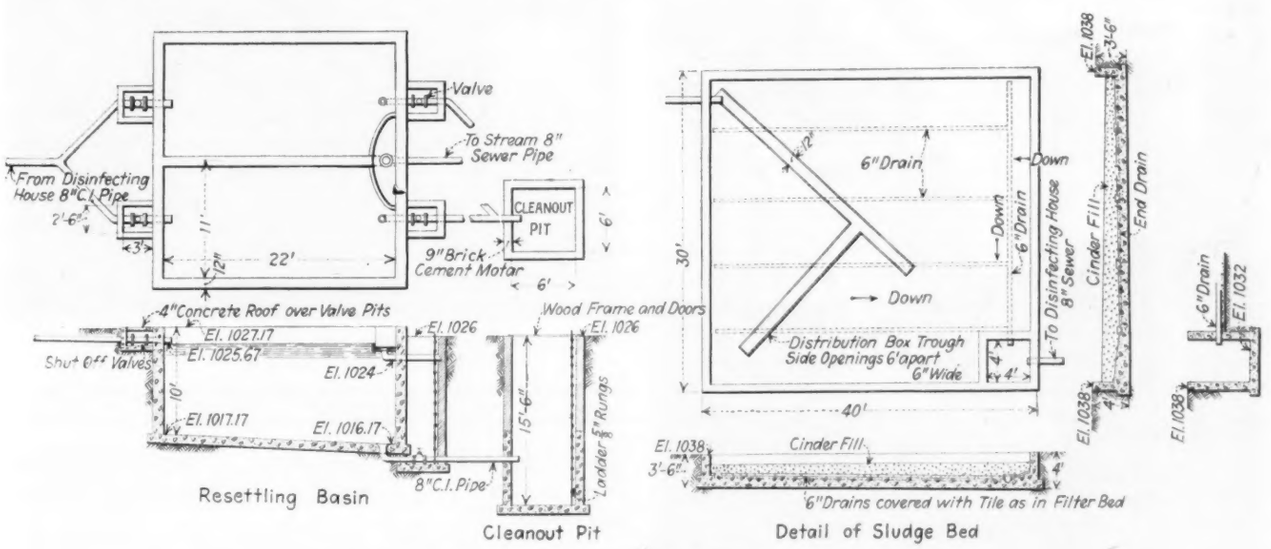


FIG. 8. DETAILS OF RESETTLING BASINS AND SLUDGE BED

The final sludge from the disposal process is allowed to spread out pancake-wise in the sludge bed and dry in the sun. After this process has been completed, it may be scraped up in a solid or rather semi-powdered form and removed. It makes an excellent fertilizer and is largely used for this purpose. The high nitrogen content in this material makes garden vegetables fairly "hump themselves."

Nova Scotia Co.'s Rescue Car: First Firm in America to Use Breathing Apparatus

Introduces Giersberg Oxygen Equipment — Car for Fourteen Men, Heated by Electricity or Steam, Carries Five Sets of Apparatus, Maps of Mines and of Water Lines, and First-Aid Room

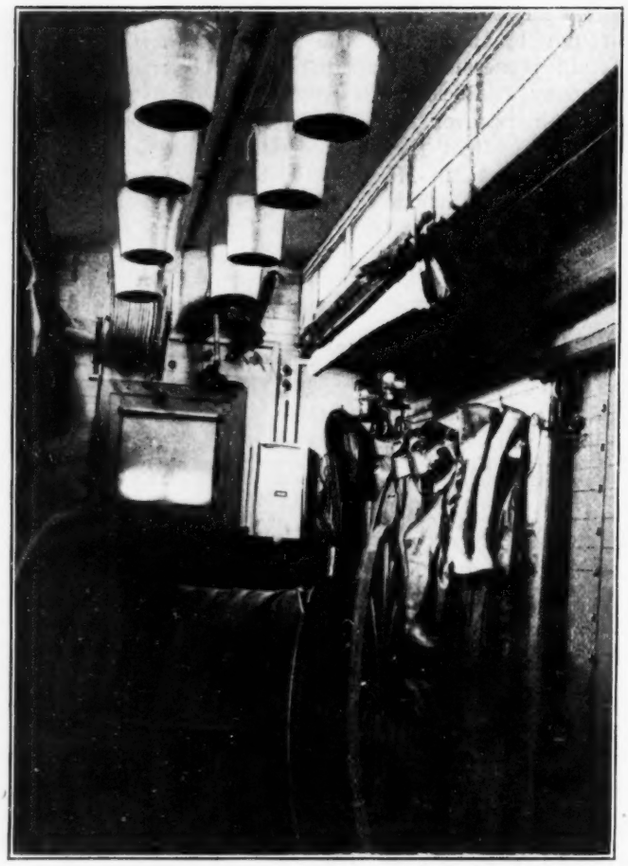
BY FRANK H. KNEELAND*
New York, N. Y.

AS EVERYONE knows, much work has been done during the last two decades in safety, first-aid organization and drill. This is, of course, closely related to that of mine rescue, the two usually going hand in hand.

Just who started this movement or where it originated it is now difficult to determine. Nor are either of these questions important, the great consideration being that somebody started them and somebody kept them going until now each state has many first-aid teams and thousands of men are annually trained for mine-rescue operations.

Looking backward, however, it is interesting to learn that the first set of breathing apparatus imported into America was brought in by the Nova Scotia Steel & Coal Co. This was of the Giersberg type. This form of apparatus was the forerunner of the Fleuss, which was, in turn, the precursor of the well-known Draeger apparatus.

*Editorial Staff *Coal Age.*



FIRE-FIGHTING APPARATUS COMPARTMENT

From this view some idea may be gained of the quantity and variety of fire-fighting and emergency equipment carried. A set of ladders reposes upon the truss rods beneath the car body.

INTERIOR OF COMPARTMENT FOR BREATHING APPARATUS

Note the oxygen helmets, a stretcher on its stand and a cabinet for surgical implements and dressings. The medicine and blanket cabinet is to the left beyond the range of the camera.

Nor did the Nova Scotia company stop with this notable priority. It has progressed in mine-rescue training as have other firms. Being older at the game than many of the coal producers now having "crack" teams, it has the tremendous advantage of long experience in its favor when a real emergency must be met.

Rescue Car

This car is normally kept on a side track about 100 yd. from the main office. When not actually in use it is thus always ready for an emergency.

The mine-rescue car maintained by this company, while perhaps not as large or as pretentious as some of those belonging to some of the larger coal companies in the United States, is excellently adapted to the needs it is intended to serve. The equipment of this car, while not elaborate, is quite complete and appears to be adequate to meet almost any possible emergency.

Electricity Heats Car in Engine's Absence

The car itself is a small passenger coach remodeled. It contains three distinct compartments of about equal size. The first is intended for the accommodation of the crew and will seat fourteen men. This portion of the car has been left almost in its original condition, with ordinary seats in place.

What appears to be the most conspicuous change made in this section of the car is the installation of electric heaters. These will keep the car reasonably warm even in severe weather should it become necessary to place and leave it on a sidetrack where steam from the locomotive or some other source is unavailable but where it may be within reach of an electric power line. The heaters may be made to serve a similar purpose when the car is in the yards at Sydney Mines.

The second compartment is the hospital and mine-rescue apparatus room. Here are kept five complete sets of Draeger breathing apparatus, seven oxygen cylinders, a pulmotor, a cage for canaries, a dozen electric safety lamps, together with charging equipment and spare parts for the various appliances. This compartment contains a stretcher stand, a small writing desk, lockers for overalls and the like, as well as blankets, rubber blankets towels and similar necessities.

All Mine and Water-Line Maps on Board

The medicine cabinet contains first-aid supplies, absorbent cotton, gauze, adhesive plaster, bandages, instruments, utensils, needles, legatures, scissors, etc., together with a formidable array of medicines, anesthetics and stimulants. Among the latter is a large bottle, supposedly kept full, of "third rail" brandy. On the day I inspected the car, however, this bottle was absolutely empty. Canada as well as the United States is—theoretically at least—dry, arid and parched.

In this compartment of the car also is kept a tin tube containing up-to-date maps of every mine the company owns. Another similar tube contains plans of all water lines with their connections such as fire plugs and the like.

The third compartment of the car might well be termed the baggage room, for this it strongly resembles in appearance. Here are kept the fire-fighting and general-utility tools. These consist of a large reel of fire hose, lanterns, buckets, axes, saws, bars, sledges, hammers, hatchets, nails, stables, rubber coats, boots, and sou'westers, rope, tackle, snatch blocks, lineman's climbers, tool belt and safety strap, a chest of small tools (wood and cold chisels, brace and bits, drills, etc.), wrenches, electrical wires for temporary work, a kerosene cook stove and a set of cooking utensils, picks, shovels, a pair of boat hooks and all other tools and appliances that experience has shown may be needed in an emergency. A set of ladders is carried on the truss rods underneath the car body.

Room Provided for Four Loaded Stretchers

This tool compartment is provided with two side doors of large size, so that the hose reel and other appliances may be readily taken off or placed upon the car. The stretchers, four in number, which are kept here also may be slid through either of these openings, into the car together with their burdens. The door between this compartment and the next one is sufficiently large to permit the easy passage of the stretcher. It may be placed upon the floor of the car, or if the patient requires immediate surgical attention it may be deposited upon the stretcher stand, which is of proper height to permit the surgeon to work with ease and efficiency.

This stretcher stand consists of four pipe columns, the upper ends of which terminate in forks of suitable size to receive and securely hold the handles of the stretcher. The columns are so placed as to carry their burden without danger of its moving endwise. They are securely fastened to the floor by means of floor flanges.

This rescue car is kept on a sidetrack near the office of the Nova Scotia Steel & Coal Co., at Sydney Mines, N. S. It is kept reasonably warm in severe weather and ready at all times, day or night, to go to the scene of an accident or fire either underground or on the surface. When a call for help reaches the office the rescue crew is immediately summoned and a locomotive procured. To obtain a locomotive is always easy, as one

or two are always at work in the yards of the company's steel plant close by. By the time the rescue train is coupled up the crew is in place, and a swift run is made for the scene of the difficulty.

From the foregoing description it will be apparent that this rescue car, while unostentatious in appearance, may be highly efficient in action. In times of emergency men who are brave, intelligent and individually efficient may be found at almost any plant. The two great needs upon such occasions are organization and equipment. This rescue car with the crew that it carries furnishes both. On several occasions in the past when trouble has arisen at various operations of the company, and help has been called for, this car has been the means whereby it could be promptly and effectively furnished.

Waiting Room for Miners at Shaft Is Cool In Summer and Warm in Winter

MORE and more attention is being paid around the coal mines to the convenience and comfort of the men. At the Silver Creek colliery of the Philadelphia & Reading Coal & Iron Co. there is provided a plain but comfortable waiting room for the protection of the men from the weather while awaiting their turn to go down the shaft. The accompanying illustration shows the type of this building. It is 40 ft. long and 10 ft. wide and is open on one side. This makes it cool in the summer and yet gives the men sufficient protection from the rain and sun.

Through the center of the building, extending almost its full length, is a steel drum 30 in. in diameter, the purpose of which is to warm the building during the winter. This is connected by a pipe to the exhaust from the fan engine. The steam from this source is sufficient to make the building comfortable during the coldest weather although one side is entirely open to the weather. Should the fan, for any reason, be idle when the building needs to be heated, a small live-steam pipe line is connected to the drum.

As can be seen from the illustration, the waiting room is located conveniently near the tender shaft. In consequence the men have only a comparatively short distance to go through the weather to reach the cage.

Kentucky Opens Its First Big Strip Pit

WHAT is said to be the first stripping operation in Kentucky has been opened by the Sunlight Mining Co. near Nortonville and Madisonville, Ky. It made its initial run on Sept. 2 to test its transportation and loading facilities. It loaded on that day twelve 50-ton cars in six hours. The Sunlight concern proposes to produce 3,500 to 4,000 tons daily, and hopes to reach that output within sixty days.

The company turns its coal over under contract to the Sunlight Collieries Co. It is stripping a 700-acre tract, which it expects will last the next twenty years, as there is a combined thickness of 11 ft. of coal in veins 11 and 12. The overburden is 3 to 50 ft. thick.

The Sunlight concern is controlled by T. W. Crow, of Jasper, Ala.; J. B. Boddie, Madisonville, is general manager; Monroe B. Lanier is president; Sterling S. Lanier, Jr., vice-president, and R. L. Schlotman, secretary.

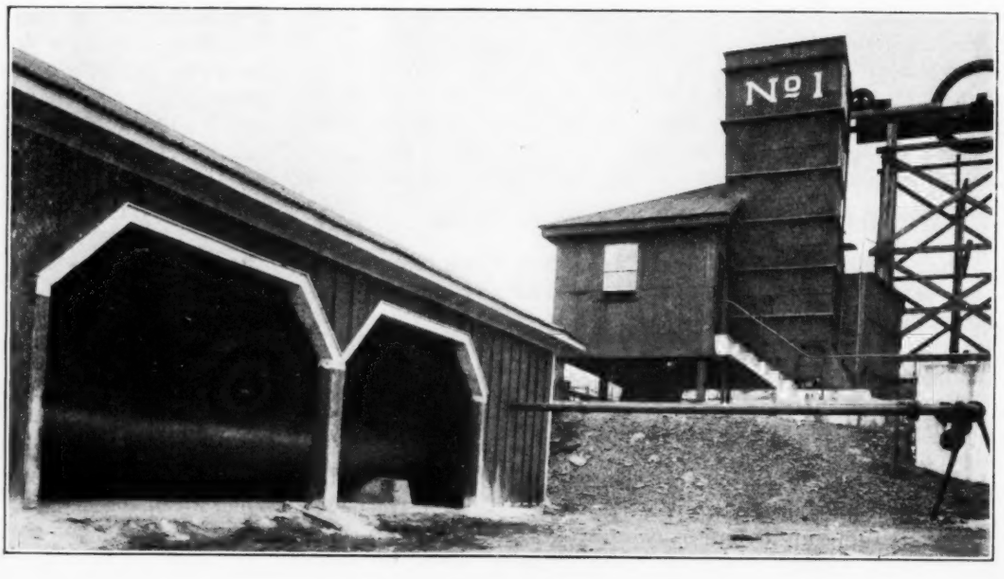
A "Dragon" type shovel is removing the overburden, and another will soon be installed for the same purpose. The box cut will be 100 ft. wide and extend clear across the tract. The stripping shovel weighs 700,000 lb., has a 6-yd. dipper, a 58-ft. dipper stick and an 80-ft. boom. It will remove 3,500 yd. of earth in an eight-hour shift.

Two loading shovels remove the coal, and two more are to be installed when the second stripping shovel reaches the job. The coal is loaded in dump cars and taken to the temporary tipple. These loading shovels each have a capacity of 1,200 tons in eight hours. Three trains of ten 5-ton dump cars drawn by "dinkey" locomotives are engaged in the transportation of the coal. Each trainload represents one car of coal, or fifty tons. A modern four-track tipple is to replace the temporary structure.

When the new tipple is installed the coal from the dump-car trains will be dumped to a 50-ton hopper, thence to a reciprocating feeder, where the coal will be uniformly distributed over a shaking screen, the larger sizes passing over picking tables, where slate and impurities will be removed by workmen before the coal is loaded in the cars, four of which will be loaded simultaneously with as many sizes of coal. Lump coal of 2½, 4½ and 6 in. will be produced.

Waiting Room Near the Shaft Entrance

Warmth is secured in cold weather by means of the steam drum running nearly the entire length of the building and through which exhaust is passed.



What the Bureau of Mines Purposes to Do On Behalf of the Coal Industry*

Has Only $50 a Mine and 65c. per Miner to Expend on Coal Industry — Would Co-operate with Industry in Running Test Mines so as to Save Coal and Labor and to Settle Wage Controversies

By F. G. Cottrell†
Washington, D. C.

THE Bureau of Mines exists primarily to help the mining industry, the importance of which in this country is at least equal to that of all other mining industries combined, whether the comparison be based on the number of miners employed, the value of the output, the wide distribution of the industry or the number of producing mines. Consequently it is natural and proper that fully half the mining work of the Bureau should be concerned directly with coal mines and with matters of interest to the operators and miners of such plants.

In what was practically his inaugural speech, Mr. Cottrell delivered at Denver his opinions on the possible functions of the bureau, especially in regard to the economics of mining. He believes that it could do much to reduce coal and labor waste and by presentation of unquestioned facts could oil the ways when the vexatious problems attending wage settlements were being considered.

In round numbers the coal industry employs 750,000 men and there are some 8,000 producing coal mines in the country. For expenditure in metallurgy, chemistry and metal mining, the Bureau receives about a million and a quarter dollars each year. This means that something less than half a million dollars per year is available to the Bureau for co-operation with, and for affording assistance to, the coal-mining industry.

Appropriation Figures $50 Per Mine

On that basis there is an average per year of $50 to each coal mine or 65c. to each coal miner employed. Individually you would hardly appreciate this amount or think it a worthy subsidy of a great Government, yet it represents the average amount of money with which we have to work and from which we must make the best possible return to the average mine and man in the coal industry.

It is evident, therefore, that as far as individual mines and men are concerned, the Bureau must help the coal-mining industry chiefly in indirect ways, in ways, that is, which may reach each individual in indirect benefits, the origin of which may be easily lost sight of by persons who do not follow closely the work of the Bureau.

It is by these indirect means that the Bureau has reached, and must continue to reach and appeal to, every man in the industry who desires to be helped. I say "desires to be helped," for you must remember that the Bureau of Mines stands alone among the mining departments either of nations or of states in having absolutely no police or regulatory powers given to it, with one exception, however, which I will mention later.

This fact is a matter that causes comment and often wonderment from representatives of foreign governments who from time to time visit our central and field laboratories and offices. The Bureau cannot compel you or any operator or any miner to take up or enforce either its improved economic methods or its safety practices and appliances; it can only experiment, demonstrate and point the way. It is therefore your Bureau in a very democratic and intimate sense. The responsibility is yours, not only for its adequate support through Congressional appropriations but also for making its findings and recommendations really effective in the industry.

In regard to the Bureau you cannot take the attitude "Let George do it"; the final authority is yours, and the responsibility must likewise rest with you. There is but one particular in which the Bureau does not lack ultimate authority. Coal mines title to which is owned by the Government and which are leased to individuals or companies under predetermined operating regulations come under the supervision of the Bureau of Mines, but this provision is so new and, as yet, so small a part of the Bureau's functions as to be at the present time quite an insignificant part of the Bureau's activities.

Not Merely a Bureau of Mine Safety

Many of you know of the Bureau through its mine-rescue work, its rescue cars and stations, the railroad cars which are fitted up with living and training quarters in which first-aid and mine-rescue training are given and which at times of disasters and other emergencies are dispatched to the mines for co-operation and assistance. There also are several auto-trucks equipped for training and emergency service. Outside of certain fuel-testing work this first-aid and mine-rescue training force is the oldest division of the Bureau, more than ten years having elapsed since its inception.

It is time to take stock that you may know where this work stands and toward what point it is heading. Some have even raised the question whether the Bureau of Mines was not after all merely a "bureau of safety first." While the Bureau is undoubtedly, as is perhaps

*Article entitled "Policy of Bureau of Mines Concerning the Coal Industry," read before the Rocky Mountain Coal Mining Institute at its Denver (Col.) meeting, Sept. 10, 1920.
†Director, Bureau of Mines.

quite natural, best known to the general public through its safety and other humanitarian activities, this is, I am convinced, not because such work consumes an entirely disproportionate part of the Bureau's resources and interest but rather because the Bureau's technical activities are naturally of less intrinsic interest to the man in the street.

Desires Suggestions from Mining Field

I feel that we have a right to expect from you of the mining industry a much more discriminating judgment. It should be backed by willingness on your part to take the time necessary to really inform yourselves as to what is actually being done and what should constitute the future program of the Bureau. Having done this, we ask you to give us frankly the benefit of your judgment, criticisms and constructive suggestions. Only on such a basis can the Bureau function efficiently, working as it does under the strongly individualistic republican form of organization which I have just outlined. It is our American way of doing things and one in which we all take pride, so let us, one and all, be not only careful but watchful that we bear our full share in the effective co-operation which it postulates as the most fundamental element for its success. Until a short time ago my connection with this first-aid and mine-rescue work was nominal and indirect, and I had no particular responsibility in determining its scope or relation to the other activities of the Bureau.

Should Rescue Work Be Left to Industry?

I had seen the work start under the genius of Joseph A. Holmes, and broadened and expanded under the leadership of Van H. Manning. During that time the question was often discussed at some length whether we should not plan, now that the fundamental educational work has progressed so far, to gradually restrict our activities in the mine-rescue and training work by frankly passing more and more of this over to the industry itself. It was often debated whether we should not turn the resources thus released into pioneer investigative work which the industry itself could be less rightly expected to undertake. I do not wish today to attempt any dogmatic pronouncement on such issues, but rather to present them to you as definite questions on which your best judgment and counsel are earnestly desired.

I am the more strongly impelled to take this tentative attitude because I feel that just at present we are distinctly passing through a transition period and, as most of you doubtless know, my own training and experience have been so largely along chemical and metallurgical lines that during my stewardship I must lean even more heavily than my predecessors on the men of real mining experience in the industry. Thus I look upon my present function as chiefly to keep the Bureau on an even keel in its accustomed way, while aiding those in ultimate authority toward the selection and acquisition of the strongest possible staff from top to bottom.

Favors Continuance of Humanitarian Work

Frankly, I should be sorry to see conditions arise in which the Bureau ever entirely dissevered itself from this part of the humanitarian side of its present work; and no matter how far its more purely scientific, technological or economic activities may extend, I believe that a certain amount of this more human element of safety and welfare will always prove an invaluable leaven to lighten the loaf and keep alive in the morale of the Bureau an indefinable something which has, from its very inception under Dr. Holmes, given it a certain distinctiveness even among Government bureaus.

Again, by letters entirely unsolicited, my attention has been called several times recently to the work of this division. These communications set forth the work of our cars and men at mine fires or disasters and recited how lives had been saved and property recovered. Many of the men who years ago lent their personal help to the establishment of mine safety work and who have since thought only of the past of the movement have only to investigate the facts to know that it would be to the everlasting good of the industry that this work be continued. If further proof be needed, look around you at the present international first-aid meet now under way here and in which we are all participating.

Do Not Think of Bureau as Fire Department

Thus, whatever expansion and development may come in other directions, it is my feeling that we may assume the first-aid and mine-rescue training work of the Bureau, at least in its fundamentals, to be on a permanent basis and its continuance to be a fixed policy of the organization. Do not think of us on the one hand as a fire department or on the other as a diversion to share your troubles. To perform such first-aid, mine-rescue and recovery work adequately for all the coal-mining districts of the country would take many times the men and money now at our command.

Rather look to us as a central agency for counsel and for co-operative effort. Our men investigate first-aid methods and can help your teachers in order that they in turn may teach others. Our investigators are testing and approving mine-rescue apparatus and constantly informing our field men of the best methods and practices. They in turn can be instructors to your men. However, let me add that in case of disaster the small crew on one of the Bureau cars or stations cannot help you effectively unless you have prepared yourself beforehand by adequately training your own men to co-operate with them. Remember, also, that the Bureau engineers and miners are constantly making a study of mine explosives and mine-fire and recovery work and that most of them have had the knowledge which comes only from actually aiding in the recovery of mines after disasters, experiences which fortunately are new to the personnel of most mining plants and even to experienced mining men.

Bureau Officials Comment Only if Desired

Investigating mining conditions and methods and making public the results constitute a second main but indirect way in which the Bureau has reached the mining public. If a mine inspector visits your mine, you know exactly what he is doing. If your safety methods, appliances and practices are not in accord with state law you must remedy them. If a Bureau of Mines engineer investigates conditions in your workings, it is entirely possible that neither yourself, unless you particularly request it, nor anyone else will directly be informed as to the engineer's ideas of your methods and practices.

Lifting Patient Over an Overcast

A scene in the gallery erected for the demonstration of mine-rescue work at the recent First-Aid and Mine-Rescue Meet of the U. S. Bureau of Mines held in Denver, Sept. 9, 10 and 11. Working under the disadvantages entailed in the use of oxygen-breathing apparatus the men are lifting the patient with scrupulous care over the obstruction so as to avoid giving him the least possible pain.

However, he has gathered data on your practice, which will be compared with data and practices from many other mines, not only in your own state or district but with those in operation in other districts of near and distant states. It may be that ventilation systems or methods of working are under discussion, or that the Bureau is called upon to give the results of its experience in the framing of the mining laws of one of the states or as to the correct application of electricity to some class of underground work.

From the compiled data and from the combined experience of its many engineers the Bureau is able to help on questions such as the above which affect every mine and man in a state or district. It helps the individual by helping the whole. Thus, a continuing work of the Bureau is to safeguard, improve and pass upon underground mechanical and electrical appliances, ventilation, mine gases, explosives, methods of working, and everywhere and at all times to reduce the human hazard.

Would Extend Mine Electrical Inquiries

This investigative work must increase even out of proportion to the increase in the number of mines or miners. For example, ten years ago we marveled at the uses of electricity underground, and yet today, judging by the inquiries received from mine officials, electricity—its use underground, its dangers and safeguards, its efficiency and practicability—furnishes the most vital problem of all those having reference to underground mining appliances. On the whole, today public knowledge on the subject is inadequate, and the Bureau wants, as soon as funds are available for the purpose, to greatly extend its underground electrical testing work.

Continued and new investigations on mine dusts and gases, on ventilation and on underground mechanical appliances are yielding excellent and usable results. Often an investigation started with one purpose in view will yield as a byproduct a result of more far-reaching value than the original investigation itself.

A Laboratory That Discovered Itself

For example, when a laboratory for investigating mine gases, which could accurately analyze minute percentages of carbon monoxide and other constituents of the mine atmosphere, had been perfected it was found useful for tests of like character in connection with rescue breathing apparatus.

In this laboratory also, during the war, were laid the foundations of the great and successful gas-mask work of the Chemical Division of the Army. Further, from it came information regarding the occurrence of helium in a certain natural gas and knowledge as to the best methods by which to extract it. Moreover, the presence of carbon monoxide in the exhaust of automobile-engine gases and its menace in proposed underground vehicular tunnels are now being investigated through the work of this laboratory with money furnished by the States of New York and New Jersey.

It may be added that investigations of many kinds have found unexpected and peculiar applications. As an illustration the geophone, invented as a listening device to detect tunneling operations beneath the trenches in France, has been further perfected by the Bureau and is being adapted to a variety of underground uses. It is everywhere the province of the Bureau to investigate various discoveries and to try to apply them to mines and mining conditions.

Mine for Investigating Extraction Methods

Several times during the last few years it has been proposed that the Bureau of Mines conduct and operate an experimental mine in one or more of the several

large coal districts and so try to bring about systems of mining whereby a larger percentage of coal would be extracted. This has been opposed by some on the ground that it was an entering wedge toward Government ownership of mines.

Whether we take this particular objection seriously or not, the project raises enough questions of major policy in all directions to demand that it be approached with the greatest care and circumspection. Here again, if anything constructive is to be accomplished, I feel it must eventually be through the heartiest sort of co-operation with the industry.

It is a question for plain discussion whether or not the country as a whole can afford to allow systems of mining to continue which place beyond recovery a large percentage of the coal in the seam being mined. Everyone connected with the business of mining coal should remember that the new economic conditions prevailing since the war have made commercially feasible new methods of mining which mean much to the supply of coal available for future use.

Could Industry Help to Finance Test Mine?

The operators are not to blame for failing to adopt new systems of mining which would increase the cost of coal per ton; neither are the miners to blame for preferring to work under systems of mining to which they are accustomed. In any given mining district in changing mining methods the initial costs of the experiment are large. The pioneer must feel his way through the obstacles of newness of work, probable loss of output, dissatisfaction of his personnel—both management and miners—and higher costs per ton.

The work cannot be done in a laboratory or workshop, but must be instituted underground on a full-size scale. A single operating company cannot afford the initial expense of an experiment the results of which would benefit all its competitors. Might it not be possible, for instance, for the coal industry itself, either as a nation-wide group or as more localized organizations, such as your own, in co-operation with or through the Bureau of Mines, to undertake the investigation of some of these more general problems which must be handled in the field and on a large scale if attacked at all?

Oil Industry Has Shown Coal the Way

The recent organization of the American Petroleum Institute, under the guidance of Dr. Manning, to do much the same sort of work for the oil industry is suggestive of this possibility. I am skeptical, under present conditions, of purely governmental enterprises in the large fields of production, even from the viewpoint of collection of experimental data, for in the attempt to make good on the experiment there is often unconsciously a tendency to get away from the actual economic conditions of industry, and thus make useless what positive facts may be actually obtained by blindly ignoring their inapplicability to conditions as they exist in actual practice. This is particularly evident, of course, in such purely economic factors as may easily be entirely obscured by the employment and accounting methods imposed by governmental machinery.

I am wondering, however, if it might not be possible to operate certain test mines upon a thorough business basis and under a management responsible in a business way to the coal producers' organization. The men in charge might co-operate closely with the Bureau of Mines and any other Government agencies whose help it might seem desirable to enlist.

The primary object would be to determine just what could be done under given conditions—both technical and economic—in a problem which, on account of its untried nature and the possibility that financial losses might result, at least temporarily would make any company at present question whether it was justified in trying it out.

Might Solve Labor Problems Authoritatively

Yet accurate data concerning the problem might be extremely valuable to the whole industry, particularly in the period of fundamental readjustment that we now seem to be facing. Any financial loss which such experimental operation entailed over standard operations would thus be distributed over the whole industry and it might be borne with propriety, at least in part, by governmental appropriation, because of the unquestionable interest of the ultimate consumer, who would have his representation through the co-operating Government agencies.

Thus, co-operative experimental mines under the management of the united industry with a certain degree of Government supervision might try out methods and systems of mining best fitted for the region, solve the problems relating to the safety of the miners under these new difficulties and train officials and miners in the new work.

The data carefully accumulated and recorded under such conditions also would prove invaluable as a basis for settling many of the more intangible disputes in industry, and so would prove a great saving to both sides in a controversy.

How Combustion Economy Helps Coal Industry

Of no other essential to modern civilization is it more true than of mineral fuels (of which coal is the principal one) that use involves absolute destruction without hope of replacement. Thus in furthering a program of coal conservation it has been a function of the Bureau to make more efficient the combustion of coal. At one time it was seriously charged against the Bureau that its efforts toward more efficient burning of coal lessened the amount of coal needed and therefore the amount of coal produced; that this reacted directly against the producer and should be stopped.

Both producer and consumer know today that the more efficient use of coal, making for cheap power, reacts to promote a more widespread use of that assistance to labor, and, in the end, increases the actual amount of coal consumed. Being the agency of the Government charged with work in this field and noting the changed economic conditions in regard to the cost of power, the Bureau hopes to make itself increasingly felt in this combustion work.

Might Furnish Data in Wage Controversies

For the last three or four years there has been a growing feeling among all connected with coal mining that the days were gone when the loss of a few cents a ton in the cost of coal through ill-chosen methods or appliances or the gain through careful engineering meant often the difference between failure and success, and that today the human element of work, com-

monly called "labor," is the great factor on which the coal situation depends. The question is often asked "When is the Bureau of Mines going to come in and exert its efforts, as the permanent governmental agency concerned in the coal-mining business, to help straighten and adjust the coal situation?"

Briefly, the Bureau of Mines is interested in every problem of the coal-mining industry of this country. Up to the present time it has been of service to operator and miner alike without expressing opinions in any wage-scale or other like controversy. In all questions, however, it should be said that where such information has been properly requested, either by a Government or a state agency, or by private individuals, replies and reports have been made only on a basis of data and fact, observed and compiled, and not on a basis of opinion.

As the public each year takes, and rightly so, an increasing interest in the coal industry, the Bureau should increasingly serve it as a non-partisan governmental agency to determine the facts regarding the conditions that the coal operator must meet, and by this service the Bureau will be of increasing value to the industry.

In this connection I wish also to emphasize that although the Bureau of Mines does not attempt of itself to cover all the phases of Government activity that in any way affect the mining industry, it does stand ready at all times to lend its aid to every member of that industry in getting any questions and problems confronting him before the particular person or body in the Government service best able, either by reason of knowledge or authority, to give the required answer or action.

We hear much discussion at present as to the necessity or desirability of reclassifying the Government functions as represented by the various executive departments, bureaus and independent commissions. Doubtless there is much room for improvement along this line, but even after everything possible has been done in this direction we inevitably shall still find that a large measure of co-operative effort between the units is indispensable to their efficient functioning.

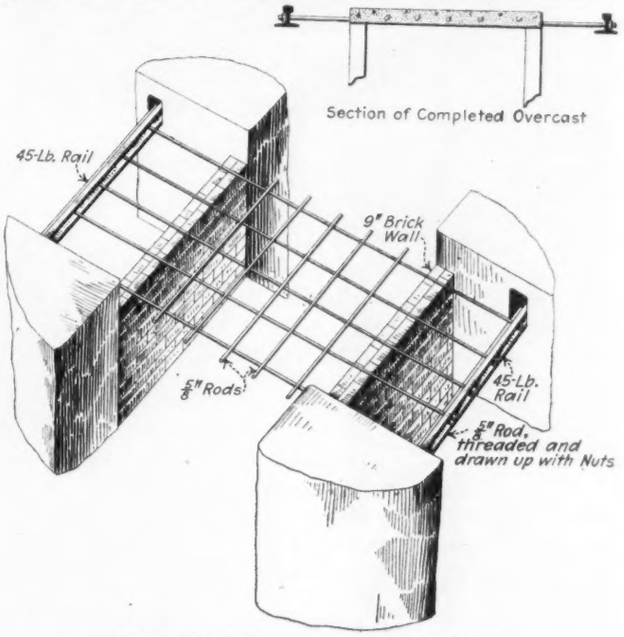
In so large and complex a system there is certain to be classification both horizontally and vertically, so to speak. Thus, transportation, the mining industry, labor and commerce each unquestionably deserve to be handled as a whole somewhere, yet it is impossible to regard each of these as if it were entirely unrelated to the others.

The only answer is the development of active and effective liaison personnel in each group capable of following a subject through, wherever it may lead, with a cordial spirit of co-operation and an avoidance of the tendency unfortunately too often found in Government work and elsewhere, to try to center in one's own group all functions which even remotely affect the central issue. The maintenance of such a liaison is one of the most crucial tests of the efficiency of the really big executive, and it is my special ambition to have the Bureau of Mines rank high in this kind of service, both inside and outside the Government's own organization.

The practical carrying out and putting into effect of the program that I have outlined involves time, money, the hearty co-operation and interest of the miner and the operator, first-class engineering skill, interest in and discussion of the subjects by such institutes as your own and a realization by everyone that improved methods and practices are vital to the continued supremacy of the American coal industry.

Concrete Overcast Where Rods in Part Replace Rails, Lowering Cost

CONCRETE overcasts are usually constructed by the use of lengths of 45-lb. rails set in concrete. This type of construction assures durability but is relatively expensive at the present time. A. E. Roberts, superintendent of the Monroe Coal Mining Co., whose plant is located at Revloc, Cambria County, Pennsylvania, advises the use of the following type of construction to meet the present exorbitant prices of steel. This type of overcast is being constructed throughout the mine and those already in service have given results that place them on an equal footing with the old type.



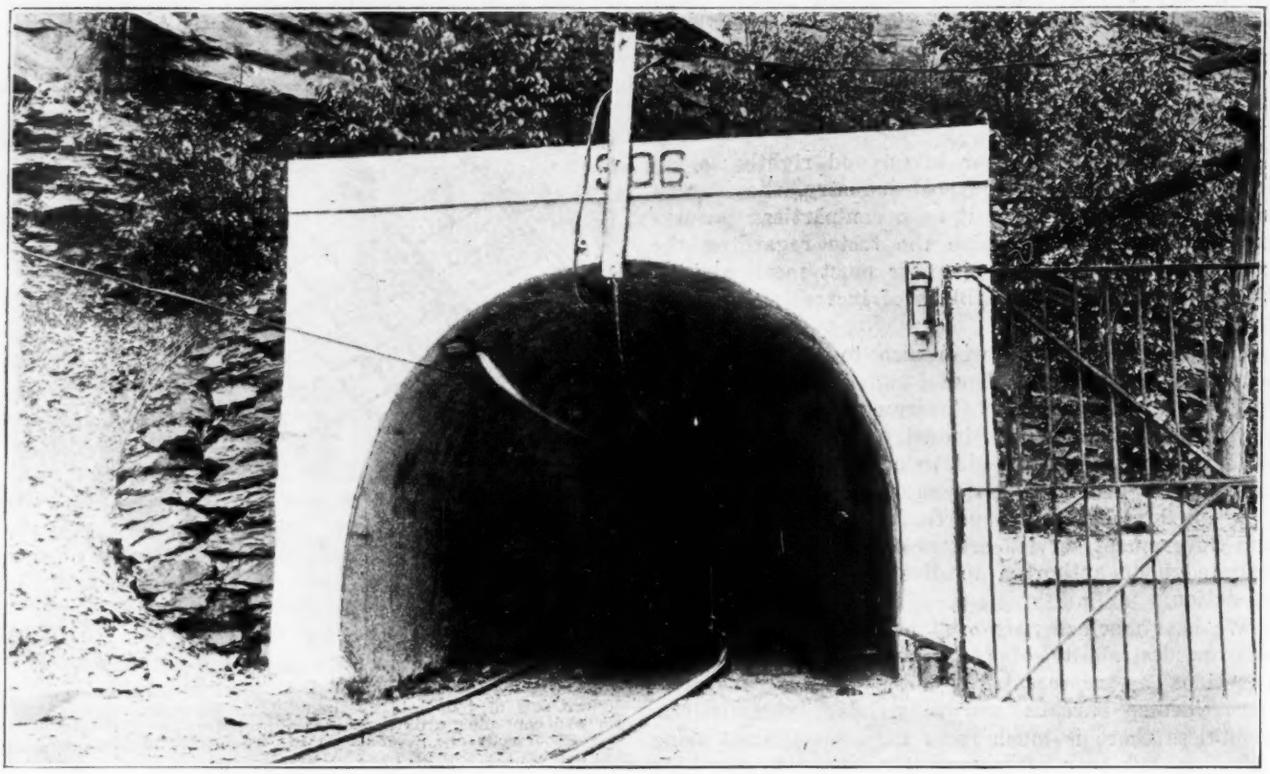
REINFORCEMENT OF THE OVERCAST

Two sets of rods laid at right angles form the reinforcement for the concrete; rails embedded in corner piers through which one set of rods are passed hold the reinforcement taut until the aggregates are poured.

Materials for construction consist principally of two 45-lb. steel rails and ten ⅝-in. iron rods. The rails are hitched into the rib at any convenient distance from the rib line of the entry after five equally spaced holes have been drilled in each to receive as many rods. These rods are threaded at each end and placed transversely over the entry, their ends extending through the receiving holes in the rails. Nuts are then screwed on the rods and the entire frame drawn up rigidly. Five more rods are then placed transversely over the others and at an equal spacing across the entry. The frame in its entirety is then set in a 6- to 8-in. slab of concrete which is supported at either end by 9-in. brick piers that have previously been constructed. The dimensions that have been placed on the accompanying drawing apply to overcasts that might be constructed in mines that are working a bed of the thicknes of the Miller bed at Revloc. The idea, however, can be applied to other operations, and the dimensions altered to suit other entry heights and widths. Mr. Roberts has been utilizing the cleanings from the motor road in mixing concrete for the slabs.

At Gary Working Faces Are Illuminated by A Permanent Lighting System

Adequate Illumination Is the Greatest of Safety Measures—United States Coal & Coke Co. Keeps Two or Three Electric Bulbs Within Ten Feet of Every Working Face Throughout Its Operations



CONCRETE PORTAL OF NO. 6 MINE

From this entrance to the remotest working face one may plainly see his way without the aid of cap or hand lamp. The first lamp may be plainly seen in the entry.

IN MOST coal mines the underground workmen are compelled to grope their way with much stumbling, their steps lighted only by a small lamp which they carry with them. Although much has been accomplished to make mines safer, practically nothing has been done toward the introduction of the greatest possible safety measure—efficient illumination. Darkness or insufficient lighting affords a most favorable condition for the occurrence of that particular type of mine mishap which takes the greatest toll in human life each year—falls of roof, slate and coal. The term "unavoidable accident" is often grossly abused, as proper lighting would in many instances have rendered the victim of a fall of roof immune from any such misfortune.

Lynch Mines Will Be Electrically Lighted

For the last six years the United States Coal & Coke Co., in its mines in and about Gary, W. Va., has been experimenting with the problem of mine illumination. During this period the officials of the company have learned much on this subject, and today every mine owned and operated by this firm is lighted from the opening to the face of the rooms by the light from electric mazda bulbs. It is possible, therefore, to walk to any section of the mine without the aid of a cap or hand lamp.

While this work is still in an experimental state certain definite results have been attained, and the experimenters feel well paid for the efforts they have expended. That the company officials consider mine illumination to have passed the rudimentary state is evidenced by the fact that this concern's new operations at Lynch, Ky., are being equipped in the same manner as those in Gary.

Trolley Wire Used as Feed Line for Lamps

Apparently this concern has so far been waging a single-handed warfare against mine darkness, at least so far as the working face is concerned. All other mining companies have done little to devise ways and means for securing an efficient low-cost type of installation with a corresponding'y low maintenance cost, yet the field is a wide and highly attractive one.

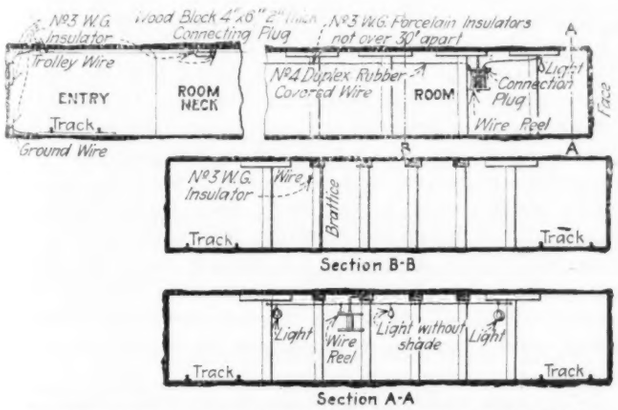
If the operators of non-gaseous mines, who under present conditions can alone safely light their mines with stationary electric lights, are not going to seek better methods of mine illumination the progress in this direction will be necessarily slow, as it will be

AN INCANDESCENT BULB 10 FT. FROM THE WORKING FACE

Lights strung along the faces are moved up after each cut has been brought down and loaded out.

confined to the efforts of one company. While this firm has been working along quietly and going ahead with its experiments, little mention has been made of its endeavors through the technical press.

The entire system followed by this company is built around the utilization of the trolley wire as a feed and the employment of the correct number of lamps connected in series and spaced at definite intervals. Three 36-watt 105-volt mazda lamps in each group are energized from the trolley wire, which carries 275 volts, direct current. On the haulage road one lamp is suspended from the roof every 100 ft. where the heading is straight, but a 75-ft. spacing is employed on curves.



LONGITUDINAL AND TRANSVERSE ROOM SECTIONS

A visit to this operation gives the impression that factory methods have here been applied to mining. Good illumination is the first requisite of such methods.

The wire used in connecting these lamps is insulated from the roof, rib and timber, and is tied to a porcelain insulator with non-conducting material. The wire running from the lamp to the ground is carried on insulators, and this holds true of the line extending from rib to rail when the rail return is utilized. It will be immediately apparent that neither nails nor staples should be used in supporting the wire.

It is considered good practice to keep the light wires on the same side of the heading as the trolley wires. Second, if the wire has been hanging for any length of time it may have the insulation rubbed off in places, and such bare spots introduce a hazard, especially if the wire is strung on the opposite side of the entry from the trolley. The side of the heading having the trolley wire always is the danger side of the passageway and the one that is scrupulously avoided.

Light Wire Acts as Trolley-Wire Guard

Lastly, if the light wire is hung close to the trolley line it will serve as a slight protection against accidental contact with this conductor. This is particularly true in those sections of the mine where the roof is comparatively low. This arrangement is no small safety measure, as in most cases a man will first rub his head on the insulated wire before he comes in contact with the bare trolley. He is thus given a degree of warning, for the light wire is carried nearer to the center of the heading than the trolley line.

Within the rooms No. 14 duplex rubber-covered wire is supported on No. 14 porcelain insulators which are attached to the posts extending up the center of the room. These insulators are placed not more than 25 ft. apart and care is taken that the wire shall not touch wood at any point. Weatherproof sockets are employed to hold the lamps.

Wire for Room Hooked Onto Trolley Line

All the rooms in the mines near Gary are carried to a depth of 325 ft. This length of wire is accordingly cut and carried on a reel in each room. Contact is made with the trolley wire at the room entrance by means of a hook. Making a contact of more permanent nature has been tried, but was not satisfactory, because of the amount of time and trouble which the installation of such a device required.

When a room is advancing it is cutsomary to carry two lights at the face and the third at the nearest breakthrough, although this detail is left to the discretion and desire of the men themselves. Frequently perference is shown for having all three lights at the working face.

Lamps are never kept further from the face than 10 ft. They are in fact supported on the nearest post. The coal bed under development at most of these operations averages 8 ft. in thickness. This, in connection with the existing roof conditions, necessitates the use of a large number of posts in each room. Both wire guards and shades of the 15 deg. angle type have been used at various times on the room lamps. The use of the shades proved rather unsatisfactory, as they frequently became dented in moving, and if the globe was broken another could not be readily replaced in the socket. The wire guards employed to protect the light bulbs were found unsatisfactory because much time is

consumed in replacing a broken globe when guards are employed. These lights, being connected in series, all of them burn or none; consequently the replacement of a globe must be accomplished in darkness.

The chief drawback, however, to the present type of installation is that so much wire is needed. Experiments are now being made with a single-wire feeder, in which case the return from the face will be made through the rail. The fact that steel mine ties are used exclusively in the rooms assists in the establishment of a satisfactory return. Most of the trouble encountered where this plan has been tried has centered in the fishplates joining the rails. If such plates are loosely connected the lighting system fails. In fact, in laying tracks within rooms most miners neglect altogether to use fishplates.

Before the coal is shot down the lights are removed to a safe distance, and after shooting are brought forward again to furnish light while the coal is loaded.

Lights Controlled by Section Switches

When this lighting system was first installed switches were placed at the room necks, and the last miner to leave in the evening turned out the lights in his working place. The switches, however, would not endure the severe usage to which they were subjected and this plan was abandoned. The lights are now turned out at the end of the day's work by means of section switches which control a complete working section. These switches are again turned on by the machine men who go in at night. This arrangement might well be improved, for all the lights in any one section are kept burning, though the machine men may be working in only a few rooms.

The cost of current for energizing the lights is not an important factor, as the company's central power station is large and current is produced cheaply. As a result what constitutes an important element of cost in most mines is almost negligible at Gary.

It has been found that the largest element of cost in the installation is that of maintenance. Many globes are carelessly broken, while a still greater number are removed from the mine by the employees for use in their homes. At present this is certainly an important and costly item. In a short time, however, the mines will be equipped in such a way that this misappropriation of lamps will be impossible. A suggestion has been made that globes and sockets provided with left-hand threads be used in place of those now employed. This scheme, however, would not prevent the men from taking both bulb and socket. It is probable, therefore, that a weatherproof socket provided with a lock will eventually be provided.

Lighting Costs 23c. Per Hundred Tons

Accurate accounts have been kept on the cost of installing and maintaining this lighting system. The cost of the power consumed is not, however, considered in these figures. When reduced to a cost-per-ton basis the lighting charge is found to add 0.0023c. to the expense of mining each ton of coal. The cost of the installation per room is about $20, and this includes wire, reel, sockets, etc. This amount could be materially reduced if half as much wire could be used, and this, as has been stated, is now under consideration. The average number of hours that a lamp will burn in this service is 360. This appears small, but it should be remembered that breakage and theft have played a very important rôle in reducing the life of the bulbs.

From experience gained at Gary it would appear that careful consideration should be given to the reduction in upkeep of the installation. Theft can be eliminated by the use of suitable sockets or some other means, but the men should be instructed in the care of the lamps if the item of breakage is to be materially reduced.

I have intimated thus far that safety is the only advantage secured from the installation of a complete lighting system. While the officials at Gary credit a large reduction in accidents to the electrical illumination of the working faces, there are other factors that must be considered when the underground is "daylighted." Chief of these is the psychological effect produced upon the employee. These men appreciate the monetary saving in carbide and oil, to say nothing of the more pleasant surroundings created by adequate lighting.

Community and welfare work have assumed an important position in recent years and by making the employees more contented with their positions are doing much toward preventing a large labor turnover.

This, however, is believed to be the first instance where a coal-mining company has carried community work into the hillside and up to the working face. Not only is the worker rendered in a better frame of mind by proper illumination, but he is better able to see what he is doing and can therefore produce a larger tonnage of coal. The effect is apparent and counterbalances the labor shortage.

Miners efficient in their work procure for themsleves and their company greater financial returns than those who are handicapped in their labors. The United States Coal & Coke Co. has, as mining companies go, a remarkably low labor turnover. With the shortage of labor as keenly felt throughout the different coal fields of the country as it is today, there should be in this a sufficient result to convince other mine operators that face illumination has progressed to a point warranting its adoption.

Is it illogical to predict that the time is not far distant when adequate lighting of the face will become universal throughout the mines of the country? The United States Coal & Coke Co. has started something; others should assist in bringing it to a suitable finish.

Southeastern Kentucky Union Lays Less Stress on Wage Than on Recognition

SEEING that union leaders in southeastern Kentucky are fighting Henry Ford, of the Banner Fork Coal Mining Co., near Harlan, Ky., charging that he raised wages above the scale asked and refused to recognize the union, it is believed that the wage-increase agitation is secondary to that of union recognition. The union leaders declare that he desires to beat the organization by agreeing to pay more than they offered to accept at the Knoxville meeting, where the prices set were $4.72 as a minimum for outside men and $5.70 for inside men. Ford is paying outside men $6 and inside men $6.40, and as the men are staying by Ford it seems likely that he will succeed in escaping recognition.

Sixty men walked out at the Dixie Gem Coal Co.'s mines, at Middlesboro, Ky., because the company refused to discharge a foreman who, in the opinion of the union miners, had discriminated against them.

Removable Auger Bit as a Safety Device

Forcing Cartridge Into Hole Too Small for It and Carrying Drills Out to Blacksmith for Reshaping Are Dangerous — Hard, Detachable Drill Points Obviate Both Risks

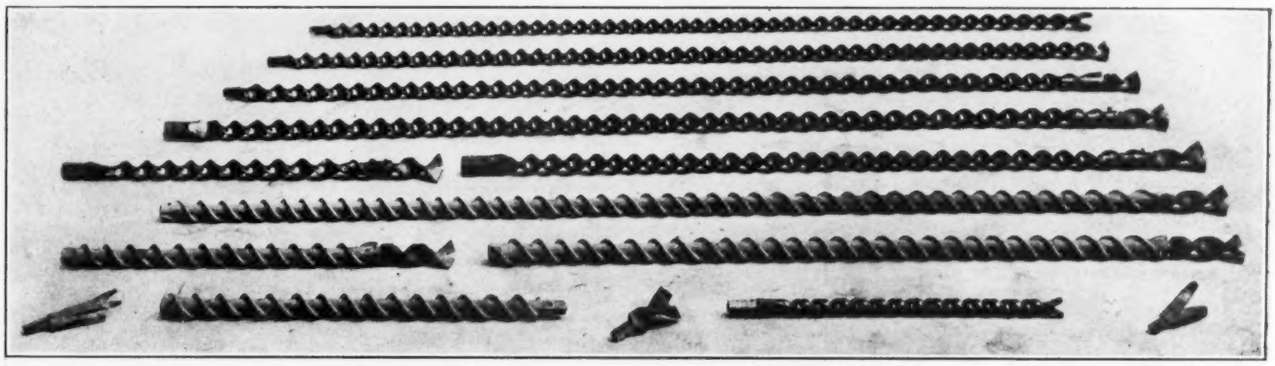


FIG. 1. AUGER BITS OF OLD AND NEW TYPES

The two augers at the top are the old style with fixed or integral bit. Contrast carrying one of these to the surface for sharpening and carrying one of the removable cutting points shown in the foreground.

PERMITTING the point of a coal auger to wear down until the hole drilled by it becomes too small to readily admit the explosive charge is the indirect cause of a comparatively small but, nevertheless, appreciable number of accidental deaths occurring yearly in coal mines. In the anthracite field of Pennsylvania the loss of life from this cause amounts to only about 1½ per cent of the total number of fatal accidents. Its abolition, however, would mean just so many lives saved each year.

Accidents Result From "Taking a Chance"

When a shot hole is drilled too small, the cartridge will not slip into place properly and will stick when part way into the hole. This requires that the miner either take out the cartridge and make it smaller or force it into its place. As is well known, the miner will almost invariably take the easiest way out of any difficulty and, unless he is prevented from doing so, will attempt to force the cartridge home with the tamping bar. It is at this point in the operation that most of the serious accidents attendant on work of this nature occur.

With the ordinary coal auger, made of only mild steel, there is a marked tendency for the point to wear rapidly, and since this point usually is of the flared or fish-tail variety any wear that may occur immediately results in a decrease in the size of the hole drilled. When the point becomes worn down the miner does not take it to the surface, as he should, but continues its use despite its small point. He is willing to risk the danger involved in drilling holes of too small a diameter in order to save himself the labor of carrying the heavy drill to the surface for resharpening.

Cartridge Is Standard but Hole Variable

In the anthracite region, as elsewhere, dynamite and permissible explosives are put up in the form of sticks which have a diameter of 1¼ in. Black powder, on the other hand, is either used loose or is incased in a paper tube, giving the cartridge the appearance of an elongated bologna sausage. This method of putting up the powder is coming more and more into use and it probably is the safest and best means of handling it. When put up in this form no danger is incurred in making up cartridges, nor is there any loss in spillage. If the hole is of the proper size, the cartridge will slip readily into it without the necessity of using force to push it home. However, there is danger that the hole will be too small for the cartridge even when the miner makes his own cartridges, for he forms the envelope over a standard cylindrical piece of wood and as the drill wears down the hole decreases, whereas the cartridge remains still standard. Thus the outcome is much the same whether dynamite, permissible powder, home-made cartridges of loose powder or factory-made cartridges are used.

Foremen Are Ordered to Carry Drill Gages

One of the anthracite mining companies, realizing the danger incurred in forcing sticks of dynamite or other "touchy" explosives into holes too small to receive them, provides each foreman and assistant foreman with a gage to be used in testing the diameter of the auger. When the size of the auger is found to be below standard, the miner is required to take it to the blacksmith for sharpening. By this means all the holes are drilled of a sufficient diameter to admit the cartridge easily. Wherever some such system is not employed, however, there always exists the danger of having the holes too small.

Even with a method of this kind there is a constant likelihood that the foreman or other official will not check up the diameter of the drill bits with sufficient frequency to insure their proper size at all times and thus prevent the miner, upon occasion, from drilling holes that are too small. The safest and surest way to forestall this error therefore is to use a drill bit that can be easily transported and that the miner cannot himself sharpen with a file.

Blacksmith Must Reshape Ordinary Drill

This can only be done by the use of tool steel in the drill point, made sufficiently hard that an ordinary file

will not "touch" it. To make the entire auger of this kind of steel would be out of the question, on account of its comparatively high cost. Such a drill, furthermore, would necessitate the miner transporting the entire implement to the surface every time he wanted the edge sharpened even a slight amount. Such steel, when given the proper temper, must be ground and cannot be filed. Coal augers are, of course, long, heavy and awkward to handle and as a consequence the miner would be prone to use a dull bit rather than go to the trouble of taking it to the surface. This in turn would reduce output. As a consequence, this type of drill would not be desirable, although doubtless it would reduce the danger of having the holes drilled too small.

By making it unnecessary to move an auger from the working face from the time the place starts till it is finished or the man leaves or is discharged, the risk in the transportation of augers is avoided. When augers are taken in or brought out on an empty car the dangers are few, but when they are piled on a locomotive or a loaded wagon danger is imminent. Rules may be made that drills shall not be placed on such wagons or on locomotives, but where there is a manifest advantage in breaking a rule it does not long remain without infraction. Consequently removable drill bits make for compliance with rules and laws and also make for safety.

However, quite frequently miners walk out with the drills over their shoulders. Should they have to pass along a heading with an electric trolley wire they are apt to touch it and be felled to the track. They may even be killed, if susceptible to shock and if their shoes and the soles of their socks are wet. Hence it is well if the drill can be left in the place with as few trips as possible consistent with its ability to cut rock or coal and make holes of the right diameter. The old-fashioned one-piece drill will not do this.

FIG. 2

Drilling from a Cross-Bar

One end of the "cross-bar," which is in reality a kind of steady rest, is fixed in the coal while the other carries the feed nut.

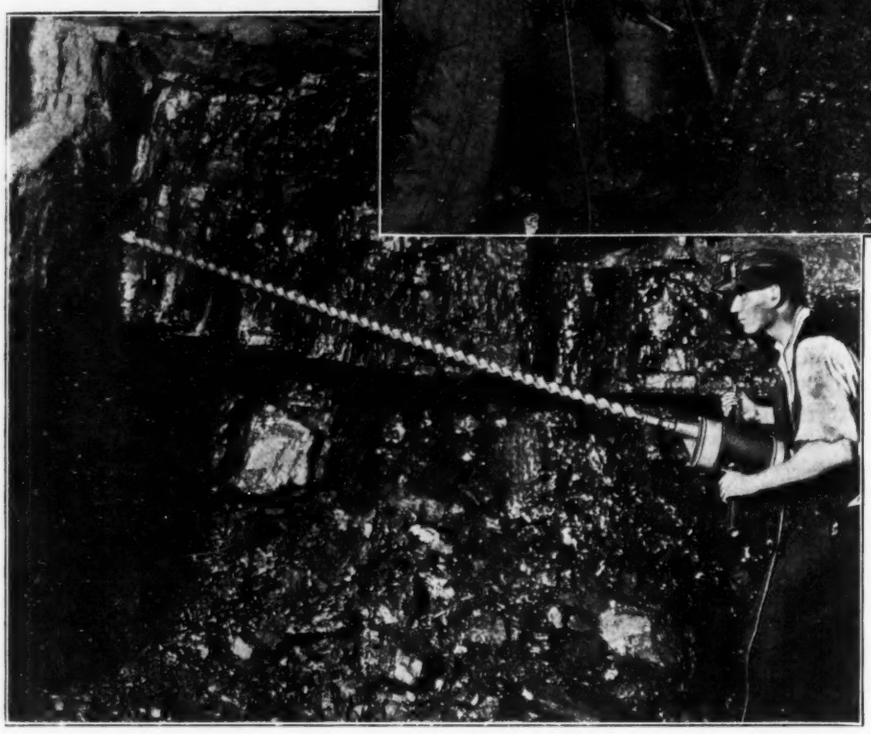


FIG. 3

Drilling Bituminous

In this coal post, standard or cross-bar is unnecessary. The operator himself forces the auger into the coal, which in soft material is not difficult. No guide or feed nut, therefore, is necessary.

Risk of Touching Trolley Wire with Drill

A comparatively short interval usually elapses from the time that a definite need for improvement in mechanical devices is recognized until such an improved appliance is placed upon the market. The Howells Mine Drill Co. a short time ago realized the need for a coal-boring auger that would keep its shape and diameter, yet be readily portable, so that the miner could easily carry it to the surface when sharpening was

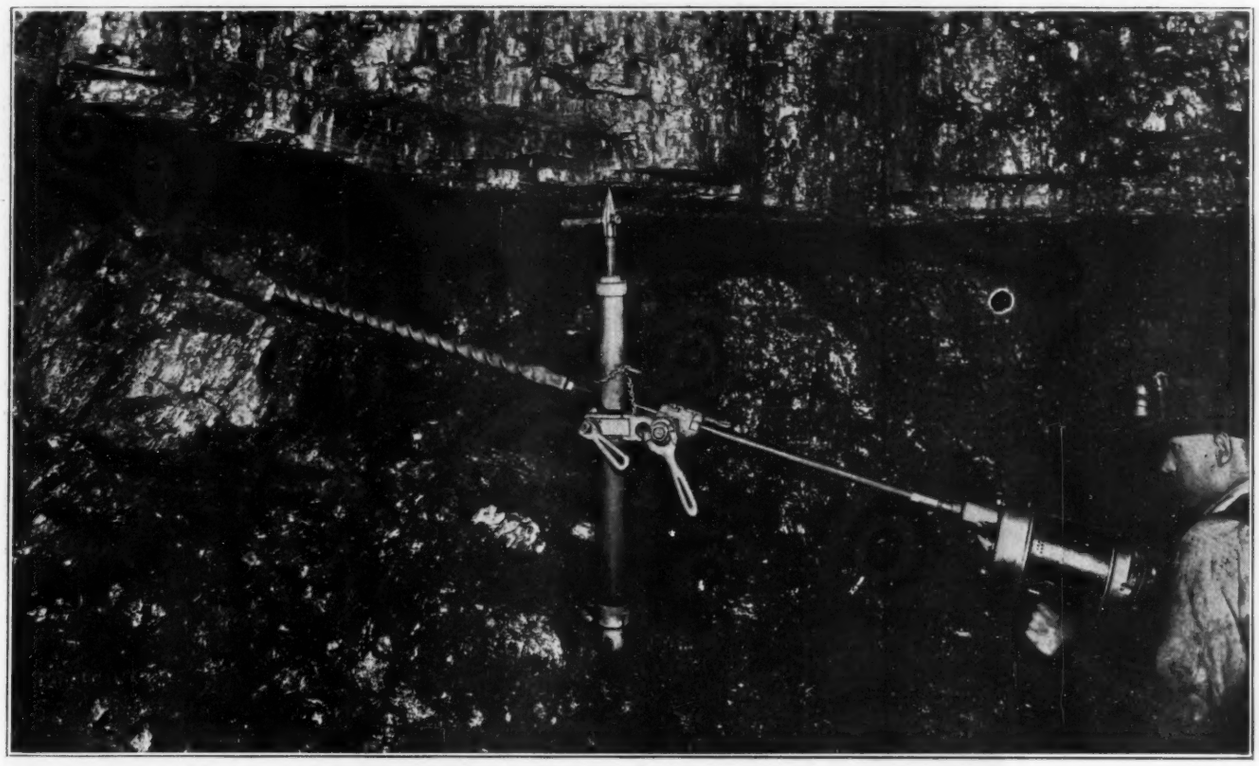


FIG. 4. OPERATING A DRILL FROM A NEW ADJUSTABLE COLUMN

The feed nut is here carried on a short arm or bracket clamped upon the upright. Manipulation of two locking clamps permits adjustment of the drill in any direction.

needed. As a result of its study of mine drilling, extending over a period of many years, it has invented and placed on the market an auger with an inserted tool-steel cutting bit. This cutter or auger point weighs only a little over ½ lb. and is about 6 in. long. It is made of tool steel and hardened to such a degree that a file will not cut it.

Adjustable Cutter Fits Into End of Auger

This cutter fits into the end of a spiral auger, its shank being square. This shank fits into a similarly shaped socket in the auger proper. A hole is then drilled through the auger socket near the side, matching with a notch in the cutter shank, through which a cotter pin is passed. This effectively prevents the bit from falling out or being pulled out of the socket. The augers themselves are normally made in 2-, 4- and 6-ft. lengths. In addition to these, which may be considered standard, there is provided an auxiliary 2 ft. length, which upon occasion extends the longest auger and makes its over-all dimension 8 ft. Such cutters and auger spirals are shown in Fig. 1, together with two of the long one-piece old-fashioned augers lying in the rear of the picture. In order to sharpen this old type of auger it was necessary to carry it to the surface complete. With the newer type, removal of the small cotter key permits of the cutting bit being withdrawn from the implement. Then it may readily be placed in the pocket and carried to the surface. Formerly it was necessary to have the blacksmith sharpen an auger; now anyone who can operate an emery wheel can do the sharpening.

The character of the steel employed in the bit reduces the danger that sharpening will wear it down rapidly. On the emery wheel such a small amount of metal is ground away that it makes no appreciable difference in the diameter of the bit, and consequently in that of the hole drilled.

Worm Type of Auger for Hard Coal or Rock

Again referring to Fig. 1, it will be noted that in the foreground of the illustration is a type of auger differing essentially from that ordinarily used. This is called the worm type and is employed where the coal or rock is harder than usual. Since this auger consists of a solid rod as a center with a helical feather on its outer surface, it is not easily bent. Furthermore, as may be seen, it is furnished with an inserted tool-steel cutter bit.

Not only has the Howells company perfected this new bit, which increases safety and lessens the labor of mining, but it also has invented a new electrically-driven drill which may be operated by one man. This machine, intended for use in the anthracite coal field, weighs only 40 lb., while the one designed for the bituminous field weighs 32 lb. The motor is of only 1 hp. and can be operated upon either direct or alternating current.

Elevation and Direction Changed at Will

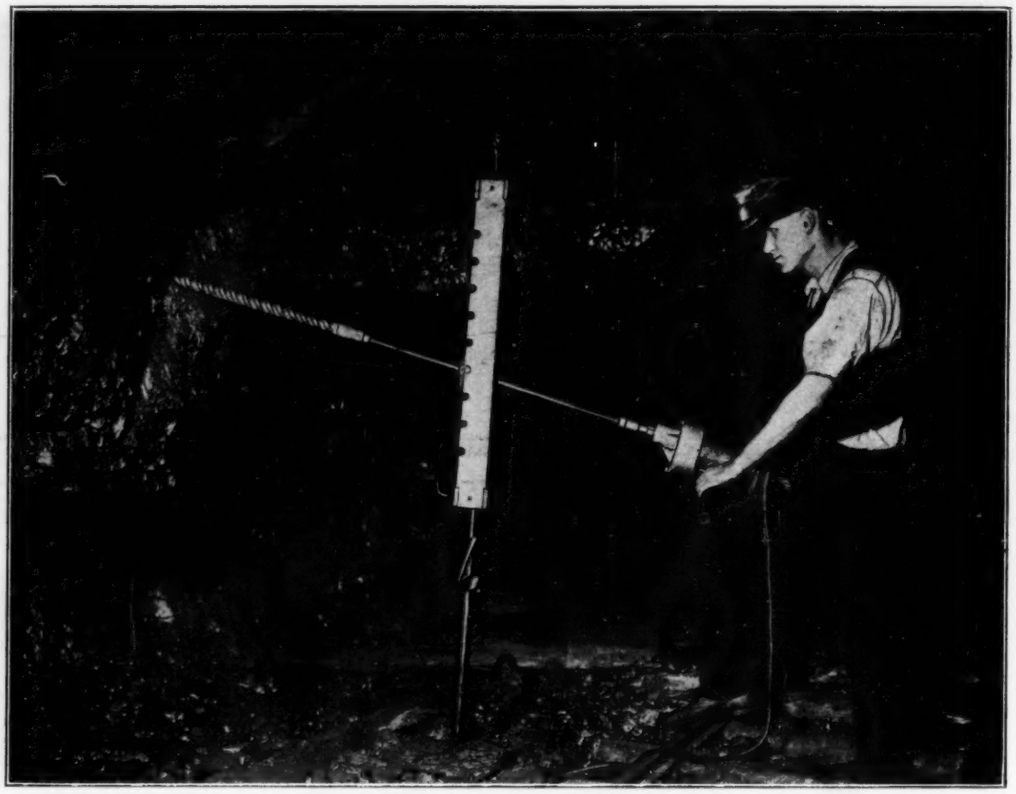
Figs. 2, 3, 4 and 5 show the drill being operated under various conditions. In the first case, Fig. 2, the drill is being used in an anthracite mine upon a crossbar. A hole is first drilled, using the bit in the foreground and to the right in Fig. 1. This hole is driven in a distance of 8 in. and into it is inserted the crossbar, to which the feed nut is attached as shown in Fig. 2.

Fig. 5 shows the drill being operated from a standard post, while Fig. 4 shows an interesting column that the Howells company has designed. The advantage of this column lies in the fact that the elevation and direction of the auger can be changed at will by simply loosening the two swinging levers and moving the nut to the

FIG. 5

Drilling from Standard Post

The feed nut here forms a crosshead that spans the opening or slot in the post. Ears or lugs upon either side of it fit into notches in the post and permit ready vertical adjustment.



proper position, where it may be tightened and the drill fixed in place.

Fig. 3 shows one of these drills in the bituminous field. It will be noted that here it is not ordinarily necessary to use any kind of a post, since the long auger may be placed immediately in the drill and used as if the instrument were a hand auger. It may readily be seen in this picture that the operator is using one of the new inserted tool-steel bits.

When operating in anthracite coal the drill with the new bit cuts at the rate of 2½ ft. per minute, while it has put in two 6-ft. holes, each requiring three changes of auger lengths, in seven minutes. These changes, are, of course, from the 2- to the 4- to the 6-ft. augers.

Participants in Matewan Battle Charged With Murder of Material Witness

SID HATFIELD, Ed Hallie, and Tatt Chambers, indicted for complicity in the Matewan (W. Va.) trouble of May 19, were indicted also in the Circuit Court of Mingo County of that state on Sept. 9 and were arraigned in the Circuit Court on Sept. 10 charged with the murder of Anse Hatfield, who was a co-defendant before the grand jury which investigated the Matewan trouble, and who would have been one of the witnesses against the four defendants. While counsel for the four men indicated that they were ready for trial, the prosecution insisted upon a postponement owing to the absence of material witnesses. The court finally granted a continuance until the January term.

The cases of twenty-four men indicted in Mingo County for participation in the Matewan trouble which were to have been tried at Williamson beginning on Labor Day were continued until the January term of court by Judge Damron at the instance of counsel representing the state. Absence of material witnesses was the ground on which the state asked for a continuance.

It has been decided, at least for the time being, not to declare martial law in Mingo County, where riots and other disturbances in connection with a strike in the Williamson field have necessitated the presence of Federal troops. Announcement to that effect has been made by General Samuel C. Sturgiss, in command at Camp Sherman, after a conference with Colonel Samuel Burkhart, who is in command at Williamson, and with others.

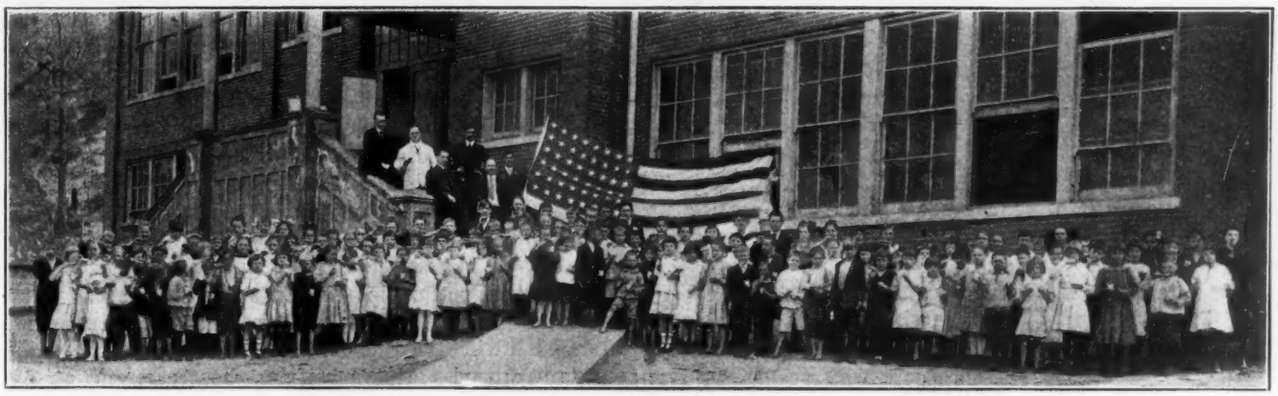
Oklahoma Mine Workers Remain on Strike —Miners Offered Increase Want More

AT THE conclusion of a conference of representatives of the mine workers and the Oklahoma Coal Operators' Association in McAlester, Okla., Oklahoma coal miners were awarded their demand of $1.50 a day advance in wages over the wage agreed on at the end of the coal strike last winter. The miners' demands were presented by John Wilkinson, president of District 21, United Mine Workers, and a heated discussion lasting two days followed. The award was retroactive to Aug. 16 and added at least $6,000 a day to the mine payroll in Oklahoma. The miners' request for abolition of the penalty clause was referred to John A. Lewis, international president, and J. B. Wilson, Oklahoma Coal Commissioner for Arbitration.

Approximately 700 of the 1,800 coal miners of the Oklahoma fields refused to accept the award and remained on strike. The strike was brought on by tonnage men, who were dissatisfied because an increase of $1.50 a day was granted to the daymen, while they were given an advance which, they claimed, did not add an equal percentage to their wages. The matter is expected to be settled in a few days.

McDowell County, Coal Mining Being Almost Sole Industry, Provides Free Dentistry

Thirteen Dentists and as Many Hygienists Visit Schools Three Times a Year and Take Care of Children's Teeth, Recording Condition and Health of the Little Patients



TOOTHBRUSH DRILL AT THE SCHOOL AT MAYBURY, W. VA.
These children, whose fathers are employed by the Pocahontas Fuel Co., were presented with toothbrushes and dental cream by that firm. Dr. Epling (in a white coat) with members of his staff may be seen on the schoolhouse steps

ONE of the chief reasons for the admiration entertained by the French and English civilian population for the American doughboy during the recent war was his "ivory smile." In comparison to the English Tommy and his French co-warrior—the poilu—our own soldiers far outdistanced their allies in the care bestowed upon, and the excellent condition of, their teeth. Both the Allied and Central Powers realized at the beginning of the struggle that the morale of the armies was destined to be a factor in the final decision quite as important as any number of high-explosive shells.

Army field regulations have long since ordained that a soldier shall be clean shaven at all times. The men who were responsible for the formulation of these war-time rules realized that a man thus conditioned had more self-respect and consequently was better fitted for battle. The same statement holds true regarding the teeth of the fighting man. Because an army was only as strong as its teeth was the main reason why good care was taken of the molars and incisors of our fighting men. Undoubtedly this is one of the reasons why the American doughboy gave such an excellent account of himself in all the engagements in which he participated.

Devise Dental Equipment for Field Use

Officers holding dental commissions in the medical services of the army were extremely busy men during the war period. Not only was theirs a big job in keeping the fighting man fit but they were forced to accept and use field equipment in accomplishing their ends. The change from the dental equipment of the civilian to the field equipment of the army was not made over night, and it was only by the time the struggle ended that the army dentist was attaining a high stage of efficiency.

Those holding higher commissions in the service realized at the close of the war that a move should be made toward instructing the youth of the nation in the care of its teeth. As a nation we have fair teeth in comparison to some of our European friends, yet there is still a long distance to be covered before we can point to this portion of our anatomy with pride and register self-satisfaction.

Obviously the only way whereby as a country we can hope to have solid molars is by instructing the children in the graded schools until such a time as they can realize for themselves the powerful influence that good teeth exert toward the general health and morale of the individual. The children of the city as a rule have better teeth than their country cousins since they are in closer proximity to dental surgeons, and their parents are brought into closer touch with the propaganda for sound teeth. The children of the outlying industrial communities have not fared so well.

Mining County Takes Lead in Free Clinic

It has remained for McDowell County of West Virginia, where practically the whole population is engaged in coal mining, to organize, establish and maintain the first free dental clinic in the country for children under sixteen years of age. McDowell County is strictly a mining community, and it is with pride that the coal industry can point to this first step in a campaign to establish industrial dentistry throughout the country.

The results of the experiment have eclipsed the hopes of the founders and would indicate that this county will not long remain alone in adopting this new idea, which fits better into an Americanization program than some others made up mostly of words and not of deeds. Rumors around Welch, the county seat, would indicate that West Virginia will soon make this a state activity and remove the direct burden from the county.

The State Legislature on June 24, 1919, authorized the McDowell County Court to establish a dental clinic under the Department of Schools and Health. This act

was approved by the Governor the following month. In order to make it a law the vote of the people was required. The measure was carried by a majority of nearly a thousand.

Dr. G. T. Epling was appointed director and the work was started. Headquarters were set up at Welch, and the director appointed a staff to assist him. Today this staff numbers thirteen graduate dentists and as many

DR. G. T. EPLING
First Director of the McDowell County Free Dental Clinic for School Children

women hygienists, three of whom are colored and treat the negro children of the county. Each member of the director's staff is a specialist in some branch of dentistry, while one of them served in the army and is familiar with field equipment.

At the end of the war there was a vast amount of dental equipment and supplies left on hand. The county has expended over $40,000 in the purchase of this material from the Government. A saving of over four-fifths of its present-day cost was thus effected.

The operators of all the coal companies in the county are strongly in favor of this new development and have taken every opportunity to assist the visiting dentists. A dentist and a hygienist, each provided with army field equipment, work together. Present plans call for a tri-yearly visit to every school in the county. This schedule has been closely followed to date but it is probable that the near future will see a visit of the dentist to the schools every three months.

When a dentist and a hygienist arrive at one of the coal-mining communities they are usually given the use of the schoolhouse. However, at some of the operations special buildings have been erected by the operators for this purpose. The arrival of the dentist may or may not conflict with the children's studies but as far as possible every effort is made to prevent such an outcome.

The name of every child in the school is turned over to the hygienist by the teacher in charge and every pupil goes to her first. She cleans the children's teeth and in other ways assists the dentist in much of his routine work. At the time of the cleansing she notes the general condition of the individual's teeth and notifies her colleague of these observations, so that when he reaches the child he will already have an idea of the nature and amount of work to be done. In this manner much time is saved.

The dentist attempts to do nothing but elementary work with his field equipment. Any unusual condition of the teeth that might require surgical attention is referred to the main office at Welch, where the child may go and receive the care of a specialist. Any case so reported is carefully noted as well as the time at which the child reports.

One detail of the visiting dentist's duties is that he must make a record of all work accomplished daily. This is done by providing him with charts so that each child's record is kept separate. Outside of accounting for the dental work done on an individual case other information is listed on this chart. This is of an elementary medical nature and is secured by questioning the child as to his or her eyesight and general health. Any case that might require the services of a physician is reported at Welch and is further investigated. This scheme provides for the detection in their first stages of many contagious diseases.

In this manner the dentist co-operates with the Health Department of the county in controlling and curbing the spread of infectious and contagious ailments among children. It is planned to keep but one chart for each child until the time is reached when he or she is no longer entitled to receive the benefit of free treatment. Upon each visit of the dentist to the school the same charts are used. At other times these are kept on file at headquarters in the county seat.

But the McDowell County Dental Clinic is not what might be called an innovation—that is, not from the standpoint of an industrial clinic—for many industries have maintained such service. Nor is it new to the coal industry itself. In fact, this county's activity is but the outgrowth of similar schemes tried by some of the larger coal operations in this very district. As a strictly county activity, however, it is new, and as such the founders deserve much commendation. Such free clinics must be controlled by some large political subdivision of the Government if all the children—many of whom live in the smaller mining communities—are to be reached.

McDowell County is not a thickly populated center, yet a glance at the following report of the dental clinic for the first eight months of its operation will show the stupendous amount of work that has been accomplished and at the same time furnish food for thought as to what might have been done, and what is actually needed, by the country as a whole:

Number of children treated	7,245
Number of temporary fillings made	3,777
Number of permanent fillings made	8,996
Number of deciduous extractions	4,307
Number of permanent extractions	429
Number of cleanings	7,550
Total number of complete treatments	3,348
Total number of operations	30,385

Dr. Charles Mayo, of Rochester, Minn., is credited with having made the statement that over 90 per cent of all diseases enter the body through the mouth. The importance, therefore, of keeping the teeth healthy cannot be too strongly emphasized if a vigorous resistance is to be offered to infection by the germs with which we come in contact daily. For a long time the National Safety Council has been preaching the gospel of sound teeth to some 3,500,000 workmen in all industries.

It has often been said that care of the teeth logically should become a Government activity. Last year the Government spent $47,000,000 to protect farmers against preventable loss of hogs, corn and cattle. Nothing was provided for any research into the ways in which loss of human life through physical defects of children might be avoided.

Emergency Hospital and Lecture Room of Pittsburgh Terminal Company

Combination Hospital and Lecture Room Buildings as Here Described Assure Injured Men Receiving Proper Medical Treatment and Also Serve as a Powerful Stimulant to Interest in First-Aid Training

BY STAFF CORRESPONDENT

ITEM 2 of the General Safety Standards of the Bituminous Coal Mine Compensation Rating Schedule allows a credit of 20c. if three specified regulations are complied with. The first of these deals with a surface receiving station for the treatment of injured employees and allows a 6c. credit if such a receiving station is located less than 1,000 ft. from the main opening of the mine and is at least 8 x 12 ft. in dimensions.

As practically every operator knows, this building must be kept scrupulously clean at all times, as well as well lighted, ventilated and heated. As the credit permitted is no small one, the building usually is constructed, for in an operation of any size it pays for itself within a short time. There is, however, no inducement to erect a building larger than the specified standard, and consequently most plants are equipped with one of regulation size only.

NEW HOSPITAL USED AS MODEL FOR OTHERS

One coal company in the Pittsburgh district, however, has seen fit to erect buildings of this character larger than the standard. This is the Pittsburgh Terminal Railroad & Coal Co., of which John Bowles is safety engineer. The accompanying drawing shows the construction plans of an emergency hospital and lecture-room building which has recently been erected at the No. 2 mine of this company, located at Cooley, Pa., only a few miles from Pittsburgh. This building is being used as a model for others of a like nature that either have been or will be constructed at other mines of the company.

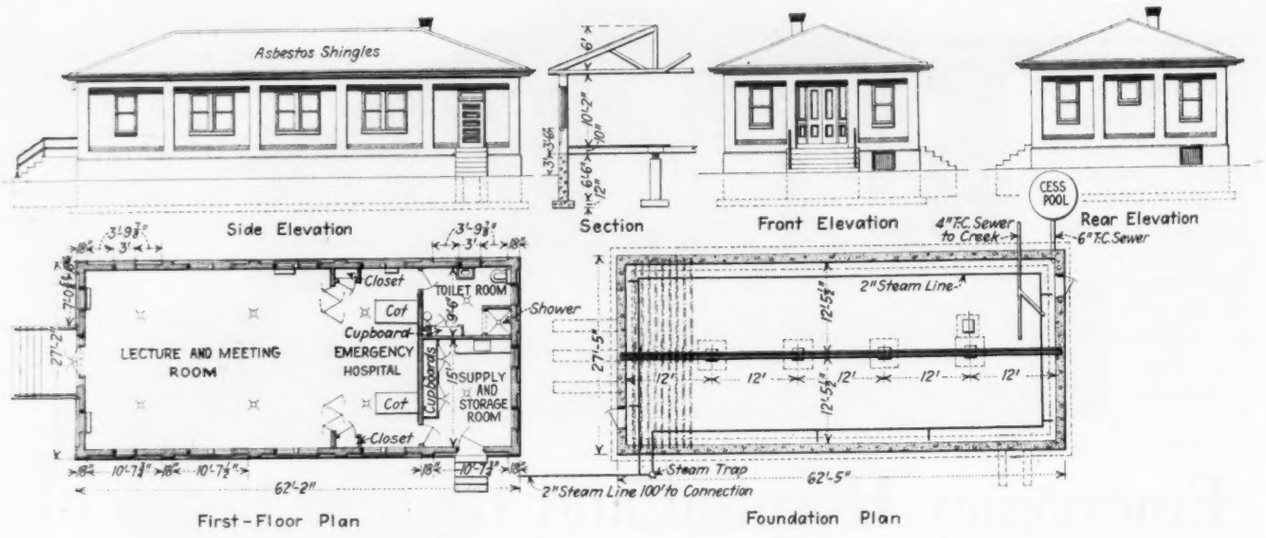
The motive for building these small hospitals has been purely an unselfish one, since no further benefit than that named is to be derived from the state. Certain advantages, however, accrue to a progressive company other than mere monetary considerations. The psychological factor enters into the reckoning and is of no small influence. The employees know that they will receive excellent care if injured and are that much more closely cemented by a bond of friendship to their chosen company. The building is erected along highly practical lines and it is safe to hazard the prediction that this type of construction will become more general in the near future. And why not? Surely, a man, if seriously injured, is entitled to the best treatment possible. It is difficult to believe that either a long ride by motor or lying for several hours upon a stretcher can be included in the meaning of humane treatment. Yet this is often the case where operations are situated a considerable distance from a city where a hospital is available.

A building of this type serves several purposes. A lecture room 36 ft. long can be lengthened 12 ft. if there are no patients in the hospital. This is done by means of folding doors that divide the building into two main compartments. A class-room is thus formed where first-aid crews may be instructed. A blackboard in the hospital may then be utilized for illustrating the treatment of various injuries. This room is further used as a place for informal gatherings.

MODERN CONVENIENCES ARE PROVIDED

The building itself is well lighted and steam heated by a 2-in. line from the boiler house. Hot and cold water is available from the same source. A shower bath has been provided in a small room adjacent to the hospital proper. A second room adjoining the hospital is used for the storage of medicinal supplies as well as linen and all other materials that should be kept on hand in such a building.

The structure presents a highly attractive appearance, being constructed of rough red brick on a concrete foundation, while asbestos shingles are used



PLANS AND ELEVATIONS OF THE BUILDING

These show some of the salient details. Folding doors separate the emergency hospital from the lecture room. These may be thrown back, making practically one large room.

on the roof. The real utility of construction lies within, however. The plastered walls, finished woodwork, many windows and lighting fixtures give a particularly pleasing and cheery appearance.

Upkeep Cost Is Almost Negligible

Little real use has been made of the hospital to date, but the men know that it is there. A trained nurse is available in time of accident. Inasmuch as many operations in the bituminous district have employed nurses who also assist in general community uplift work, a building of this nature is particularly appropriate, having proved an adjunct of immeasurable value in the pursuit of their humanitarian and educational activities.

The additional expenditure entailed in constructing a building of this type as against the specified standard is not as much as might at first be imagined. This is especially true with respect to the newer plants being constructed in the Pittsburgh district. The initial cost is the final one. Furthermore, the structure is relatively small and requires no attendant. When the hospital is not occupied, a man is detailed to keep the room clean and in readiness for immediate occupancy.

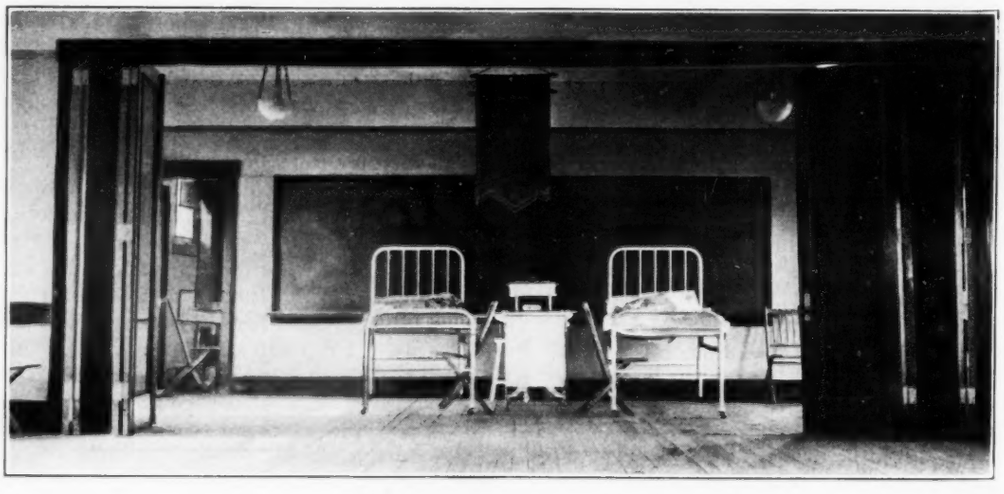
Last summer, when the various coal companies were preparing for the National first-aid meet that was held at Pittsburgh under the auspices of the Bureau of Mines, this building was the scene of considerable activity in the evenings. Preliminary meets were held and a general concentrated course in first-aid instruction given. Proof that the Pittsburgh Terminal Railroad & Coal Co. is among the leaders in the first-aid movement may be had from the fact that its teams entered in the National meet captured second and ninth state prizes. In this respect, this company's teams ran second only to those from the mines of the H. C. Frick Coke Co., one of which captured a National prize.

Encouragement Given to First-Aid Work

The construction of these buildings has stimulated interest in first-aid courses, which even under the best of conditions is difficult to keep at a high point. Any incentive to first-aid instruction or to improving the treatment of injured employees is worthy of consideration and this company has striven to accomplish something definite along these lines. In fact, while the building is not an innovation in type, it presents interesting features that are likely to encourage other companies to provide for their injured employees in like manner.

The Hospital

Note the sanitary iron cots, the stand between them, and the chairs. Note also the blackboard and the semi-indirect lighting fixtures.



Kaska, a Mining Town in the Rebuilding

Each Family Has Seven Rooms and Bath, a Furnace, Radiators in Every Room, Electric Lighting and Cemented Cellar—All Buildings of Vitrified Tile; Some Covered with Stucco—Two Large Porches on Every House

DAY by day American standards of living mount higher and higher. As this process goes on the employer of men must so alter and improve the conditions under which his men live as to render them comparable with this ever-rising standard of living.

Many a coal miner works under difficulties all day and then comes home at night to listen to the complaints of his family in regard to his home and home life. That man is not in a proper frame of mind next day to put forth his best efforts. Every little incident in the day's work, trifling in itself, but nevertheless vexatious, tends to increase such a man's antipathy to life, to his fellowmen in general and to his employer in particular.

This feeling, therefore, gradually builds up and spreads like contagion from one person to another until restlessness becomes universal among the workers and almost any occurrence, trivial in itself, may fan the spark of animosity into a blaze, when the employer will have a vicious strike upon his hands or the output per man will decrease to such a point that coal cannot be mined at a profit.

Many of the coal-mining companies throughout the country are realizing this fact and are improving both working and housing conditions. Underground, labor-saving machinery is being installed, while on the surface, excellent types of dwelling houses are being erected. Also much greater interest is being manifested in schools—their structure, scope and organization.

Furthermore a better type of company store is being provided and a better class of merchandise is on sale therein. The education of the miner's family in the utilization of the better type of goods now sold is revealed in their homes and on their persons. Relaxation also is provided, not only by the building of movie theaters, amusement halls and playgrounds but by the formation of clubs and societies so that the people are brought into close contact, not only with each other but with the various company officials.

Only Community Life Makes a Community

They, therefore, become better acquainted, not alone with their neighbors but with their employers. This tends to reduce the antagonism which has in the past often existed between various nationalities living in the same community and heads off what soon grows to be a common feeling of antipathy to the employer. Aid also is being extended to churches and other religious organizations with the idea of raising the moral standard of the various communities, a large percentage of the inhabitants of which are of foreign birth or, at least, of foreign extraction.

A man with a fair education and reasonable acquaintance with American ideas and ideals, living under pleasant conditions and with attractive surroundings, with safety and labor-saving devices furnished him in his daily work, with a reasonable opportunity to earn fair wages and support his family in moderate comfort, is not an individual that will be prone to complain about his work, but is apt to be satisfied and try to give a fair return for the money paid him.

Old Town of Kaska Fast Being Made Over

The Alliance Coal Mining Co., of Kaska, Pa., realizes the potency of these influences and is rebuilding the town of Kaska in accordance with them. The point on the railroad nearest this town is Middleport, which is about two miles away. Leaving the train at that point an individual bound for Kaska may enter a jitney making regular trips between the two places.

The road is one of the new state highways, a beautiful macadam thoroughfare that winds through the woods to the mine at Kaska. The town itself is both old and new, but the new is rapidly replacing the old, so nothing will be said about the more ancient portion of the community, because in about another year this will have ceased to exist.

Vitrified Clay Tile Covered with Stucco

Coming into Kaska the first of the new buildings to attract attention is the club or boarding house. This is shown on page 749. Like all other buildings recently constructed at this place, the clubhouse is built of vitrified clay tile, in this case covered with stucco. On the hill above the boarding house is the superintendent's dwelling. This is a single house of three stories and basement, containing nine rooms and bath. Heat is furnished by a hot-air furnace in the cellar. All the rooms are wired for electricity, and the roof is covered with slate. A large front porch and a smaller rear porch are provided. At present the grounds are not laid out and completed, but in about another year terraces will be finished and streets built.

Near the superintendent's house stand the dwellings of the foremen. These houses are nearer to the mines than the others, so that the officials may be easily reached in case of accident. The design of these houses is identical with those intended for the miners. One of them is single but the others are double. The company store, not far distant and shown in one of the accompanying illustrations, is, like all the other buildings, constructed of vitrified clay tile with a slate roof. This building is two stories high, and the interior arrangement is such that the various departments such as butcher shop, grocery store and dry goods department are separated, yet are still practically in one large room. The separation consists of walls extending a short distance into the room. Sufficient storage room is provided in the rear and in the cellar.

Will Roof Over the Dance Hall This Winter

To the rear of the store and lying between it and the schoolhouse is the new amusement building, now in course of construction. The roof and floor have been finished, and during the summer months it was used as an open-air dance hall. It will be inclosed in the fall or early winter and used for balls, moving picture shows and other social events. This building is quite simple.

being one large room with a moving-picture curtain at one end and a machine at the other. The seats employed will be movable so that the floor may be cleared for dancing and other amusements.

The schoolhouse is the only frame building in the new town. It is of simple but attractive design and contains four rooms. These are of ample capacity for the size of the town. This school is not, like the other buildings of the town, heated by a central furnace but is provided with a stove in each room.

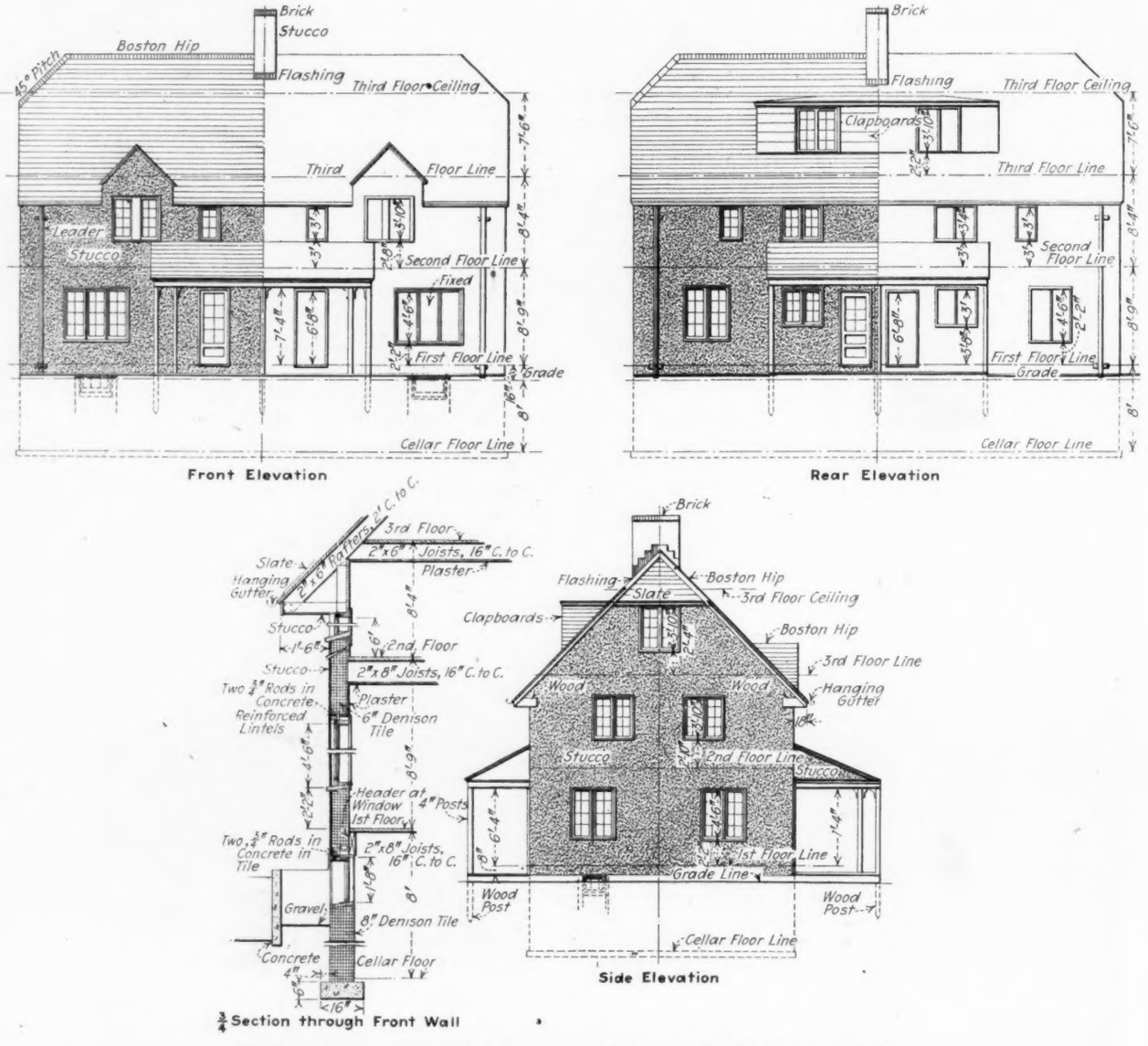
It is safe to say that many people living in cities and towns throughout the country, both in the anthracite region and elsewhere, would be glad to secure such attractive, well-designed and comfortable houses as are furnished the miners at this operation, front and rear views of which are shown on page 749.

All Have Bath, Furnace and Cemented Cellar

These houses are all double or of the two-family semi-detached type. At the present time twenty have been constructed, but before another year has passed eighty more will have been built. A contract recently was signed for twenty of these houses. The plans are shown on page 750. Seven rooms and a bath are provided for each family.

Churches and Social Activities to Follow

It was not many years ago that a bathroom in a miner's house was a unheard-of luxury. Here is a whole town where every house is provided with such a bath. Furthermore, every house has a furnace. How many towns are there throughout the United States composed of one hundred or more dwelling houses where every house has not only a bathroom but is heated by furnace, with a radiator in each room! Furthermore, these houses are wired throughout for electric lighting, and a fire wall built of tile extends from cellar to roof and separates the two parts of the building. Some of these buildings are covered externally with stucco while others are left with the finish of the vitrified tile. This gives variety in external appearance and averts the monotony for which many towns of a similar type are conspicuous. Large front and back porches are provided, and the cellar floors are cemented.



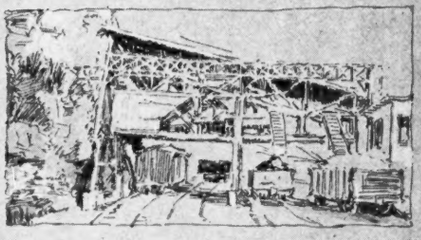
FRONT, REAR AND END ELEVATIONS OF THE DWELLING HOUSES

As may be seen these are double houses with three floors and basement. The type of construction, as revealed by the section of the wall, renders the house both substantial and warm.

The Public School

Miners' Houses

Miner's Houses



The Club House

Foreman's House

Store Building

At the time the accompanying photographs were taken grading had not been finished around these houses, but, as has already been stated, the company intends to do this as soon as possible. Furthermore, as soon as arrangements can be made, churches will be built so that the miners and their families may have the benefit of religious instruction.

The company has not yet formulated its plans for the organization of social activities but intends soon to take up this matter as well as that of the instruction to be provided in the schools. All things cannot be provided immediately at the inception and it takes time to get any plan in working order. Kaska is well removed from the attractions of city life, so that it is desirable that the inhabitants should have all necessary pleasure and recreation in their own homes to the end that the miners' families will remain at the mine in preference to moving to towns and cities.

Grumbling Has Not Yet Entirely Ceased

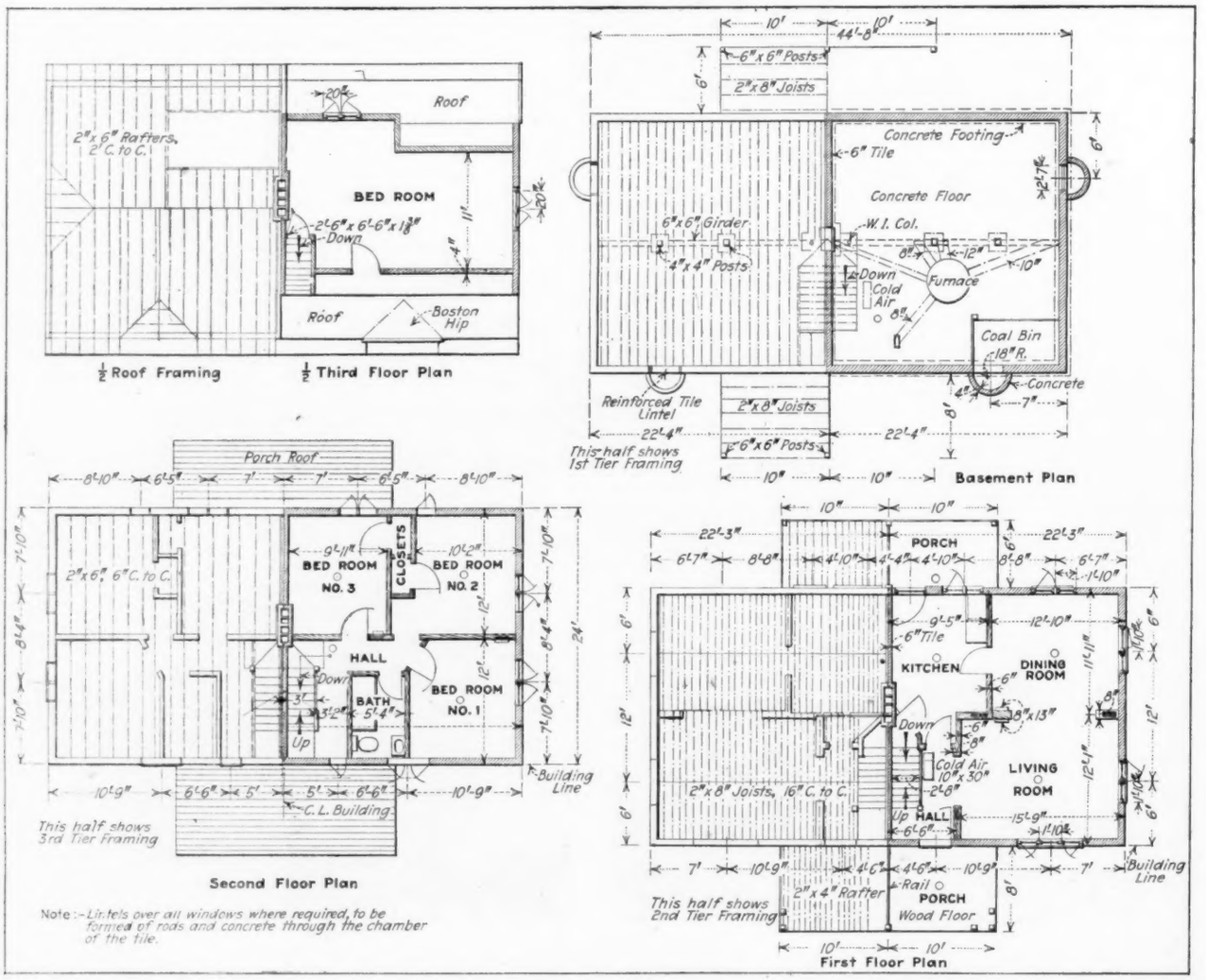
Despite all advantages here offered, grumbling is still heard among the men. This will never be entirely eradicated until the younger generation has become sufficiently educated to be able to reason and understand the proper relationship between employer and employee. Such conveniences, however, as the company has provided tend to minimize dissatisfaction and unrest to the lowest possible degree.

The breaker at this operation has already been described in *Coal Age*. In a future issue it is hoped that another article may be published describing among other things how this company is improving its mines and mining conditions. This will be particularly interesting in this instance as the operation here involved is the reopening of an old and abandoned mine.

Threatens General West Virginia Strike if Troops Are Used for Strike Breaking

GENERAL strike, involving 126,000 organized workers of West Virginia, will be called "if Federal troops are to be used as a strike-breaking agency instead of for the protection of the constitutional rights of citizens of state and nation," said C. F. Keeney, president of district 17, United Mine Workers of America, in a statement issued at Charleston, Sept. 24.

Mr. Keeney added that "before this drastic action is taken, however, the associations of coal miners in northern and southern West Virginia will be requested to use their influence to have Federal soldiers removed from the state that tranquillity may prevail."



FLOOR AND BASEMENT PLANS

Each half of these double houses contains seven rooms, bath and hall. The attic bedroom is of extreme size and might be made to accommodate several people. Each house has furnace heat, electric light and running water.

Wrong

Hinging the door on the manway side or that away from the trolley wire compels him who would pass through to cross the track. If a locomotive rams the door from the opposite side the man's body receives the full force of the blow.

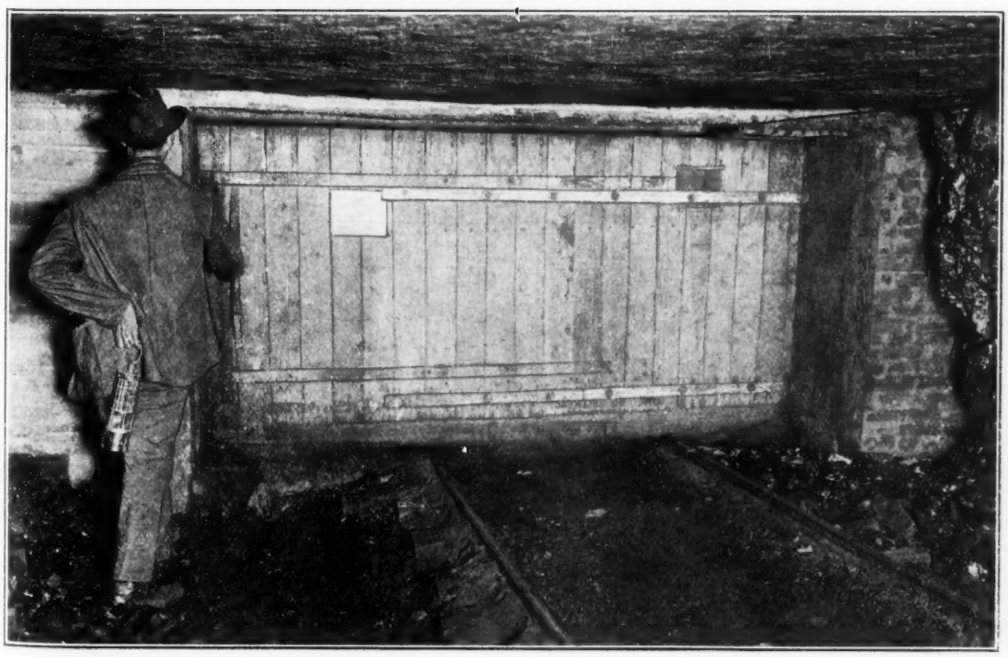
Right and Wrong in Hanging Mine Doors

By E. E. Hughes
Benham, Ky.

EVERY once in a while one hears of an accident caused by a locomotive "ramming" a door while a man on the other side is in the act of opening it. Such accidents may be easily prevented if adequate precaution be taken to that end.

The accompanying illustrations show two methods of arranging a door. The first shows the common method of hinging the door on the manway side of the entry—i.e., the side away from the trolley wire. To open such a door a man is compelled to cross the track and place himself in the path of the door should it be suddenly pushed open from the opposite side. Furthermore, with this arrangement he must go to the trolley side of the track and while opening the door is almost directly under the trolley wire. This is of course dangerous in low mines, especially as the trolley wire, where it passes the door, must in most instances be entirely unguarded on the opening side, as is the wire shown in the picture.

The second illustration shows a far better and safer arrangement. Here the door is hinged on the trolley side, and consequently if it is rammed open it swings away from the path of the traveler. In addition to this, the door is provided with a small pane of glass so placed that a person approaching it from one side can see whether a locomotive is approaching from the other, provided, of course, that such machine carries a headlight. If the locomotive does not carry a headlight or the man upon it does not wear a cap lamp and the locomotive rams the door before its presence is known to the man on the farther side it will at least swing away from and not toward him. About the worst that can happen in such a case is that the man will be knocked down.



Right

Hinging the door on the trolley-wire side permits him who would pass through to open it without exposing his entire body to the force of a blow resulting from ramming by a locomotive. A little glass window also is advantageous.

The door last described has been successfully employed for some time past in the mines of the Wisconsin Steel Co., Benham, Ky. This account of its construction and operation is published in the hope that its adoption by other producers may lessen danger to life and limb in the operations where it is employed.

Does Organized Safety at Coal Mines Pay?*

AN EXCELLENT answer to the question "Does organized safety in a coal mine pay?" is the record of the Johnson City Coal Co., Johnson City, Ill., now a property of the Old Ben Coal Corporation. This company on Nov. 1, 1919, because of its discouraging accident record and mounting costs of insurance appointed M. A. Rowan safety engineer of its mines and gave him full authority to do whatever he found necessary in order to reduce the accident costs. Mr. Rowan was not new to the mining business, having had valuable experience as engineer and superintendent of mines for several companies and as chief engineer for the coal properties of the Chicago & Eastern Illinois Railroad Co. He at once launched a safety campaign that met with truly remarkable results, as will be seen from the accompanying table.

The Johnson City Coal Co. carried indemnity insurance up to April 1, 1919, at a cost of $4.30 per $100 of payroll. On that date the rate was raised to $4.95, and as a result the company decided to carry its own insurance. From April to November, when this firm had no safety inspector or organized campaign for the reduction of accidents, the costs amounted to $5.42 per $100 of payroll. The subsequent drop in insurance expense is indicated in accompanying table.

According to Mr. Rowan, the program during the intensive campaign which he inaugurated provided for the guarding of all machinery in and around the mines; the guarding of trolley and feeder lines where necessary; the installation of safety track switches; the erection of warning signs wherever needed; frequent inspection of the mines, covering such items as track conditions, haulage practices, timbering on roads and in rooms, ventilation at face and in old workings; checking up of examiners' and shot-firers' work; the distribution of safety notices in pay envelopes; the establishment of suggestion boxes and the encouragement of all employees to use them freely.

Other provisions were the formulation of a set of safety rules for haulage and face bosses and the establishment of a bonus system whereby those making the best accident records received monthly a cash prize; the placing throughout the mines of illuminated bulletin boards on which were posted copies of National Safety Council bulletins and local safety news items. An accident meter was placed at each mine. This was simply a large blackboard at the top of the shaft, on which was written each morning the names of those injured on the previous day, with a description of the accident. An electric gong placed over the blackboard rang at change of shifts.

It is significant that in addition to a big decrease in the number and severity of accidents, the daily production of coal actually increased more than 11 per cent, and this was accomplished with the same number of men, mules, cars and other equipment.

If anyone has doubts as to the value of safety work in reducing operating costs and increasing production the record made at these mines should help to remove such misgivings.

*Abstracted from *National Safety News* of July 5, 1920, published by the National Safety Council.

TABLE SHOWING HOW ACCIDENT RECORD OF JOHNSON CITY COAL CO. WAS BETTERED BY SAFETY ENGINEERING

	(1) Previous to Apr. 1, 1919	(2) April 1 to Nov. 1, 1919	(3) Nov. and Dec., 1919	(4) Jan., 1920	(5) Feb., 1920	(6) Mar., 1920	(7) Comparison of Col. 6 to Col. 2
							Per Cent
Number of accidents causing over 7 days' lost time	Records not available	143 (20.4 per month)	*See note below	20	11	10	51 decrease
Number of days lost (for accidents over 7 days only)		34,000 (4,857 per month)		1,950	622	730	85 decrease
Number of hours worked (approximated)		997,600 (142,514 per month)		137,200	116,400	145,600	2 decrease
Frequency rate (for accidents over 7 days only); number of accidents per 1,000,000 hours worked		144		149	95	69	52 decrease
Severity rate (for accidents over 7 days only); number of days lost per 1,000 hours worked		34.2		14.2	5.4	5.01	86 decrease
Average tons per day		4,587		4,521	4,932	5,100	11.2 increase
Total cost of all accidents (includes compensation paid and pending, medical and legal expense, and salary of safety engineer)		$47,320 ($6,760 per month)		$4,002	$2,641	$2,260	66 decrease
Accidents cost per ton		$0.0752		$0.0505	$0.037	$0.024	68 decrease
Cost of accidents per $100 payroll	$4.30	$5.42		$2.81	$2.15	$1.48	72 decrease

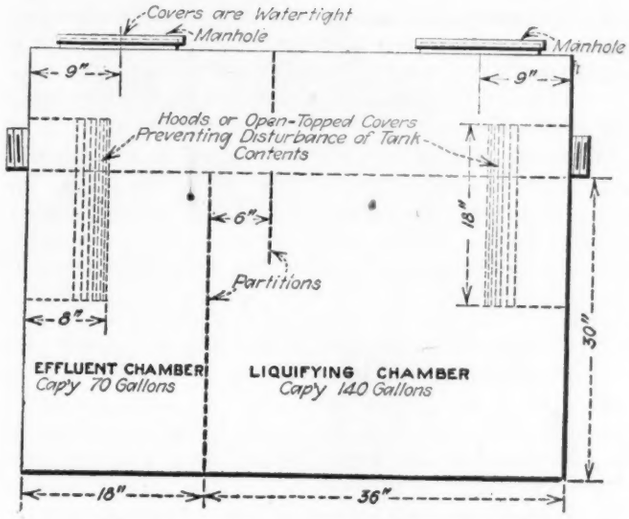
* NOTE.—Miners on strike during most of this period so record is omitted as not being representative. Resumed work during last part of December.

Septic Sewage Disposal Readily Provided For Single or Small Groups of Houses

SEWAGE disposal is an ever-present and sometimes vexing problem around mines, factories, agricultural communities and other places, where the expense of a large and elaborate sewer system is not warranted. In the past the difficulty of avoiding the pollution of waterways has been surmounted in a variety of unsatisfactory ways, but of late years the installation of septic tanks has in many instances simplified matters considerably.

Heretofore most septic tanks have been built of concrete, brick or vitrified clay in some form or other. Recently, however, the Dail Steel Products Co., of Lansing, Mich., has placed upon the market what it terms its Wolverine septic tank. It is made of steel so alloyed as to be unaffected by acids or other chemicals contained in the sewage. Therefore it is practically corrosion-proof and consequently will last almost indefinitely. The tank is, of course, constructed upon strictly scientific lines and in accordance with the best modern practice.

It operates on a principle that has been known and utilized for many years. The tank itself consists of a series of compartments or chambers, two or more in number. The Wolverine consists of one tank with two interconnected compartments. These are known as the liquifying and effluent chambers respectively.



CROSS-SECTION OF THE SEWAGE TANK

This shows the incoming and effluent baffles and the vertical partitions governing the movement of the water through the tank.

Raw sewage enters first the liquifying chamber. Here the heavier portions or solids settle to the bottom, while the lighter seek the top and eventually form a scum. Two varieties of bacteria develop in these septic tanks. The first of these are harmless so far as man is concerned and thrive most vigorously in darkness and removed from the presence of oxygen. The other variety is the harmful, disease-bearing kind that develops most rapidly where light and oxygen can gain access. In the septic tank the two kinds of bacteria wage continuous warfare, with the result that the harmless variety, greatly outnumbering the others, exterminate them before they can escape with the effluent.

During this warfare of the bacteria the solid portion of the sewage is broken down and converted into either a liquid or gaseous state. Thus the effluent is practically as clear as water. After leaving the septic tank the process of disposal is completed usually by allowing the soil to absorb the affluent. This is rapidly accomplished by draining the liquid into a system of unglazed tile laid in gravel cinders or porous earth about a foot below the ground surface.

This septic method of sewage disposal is extremely simple and easy to install while at the same time it is highly efficacious. For individual residences or small communities, where the expense of a more elaborate system is unwarranted, it offers possibilities of which many mining and industrial firms are taking advantage.

Mark Your Electric Hazards and Section Switches with Whitewash

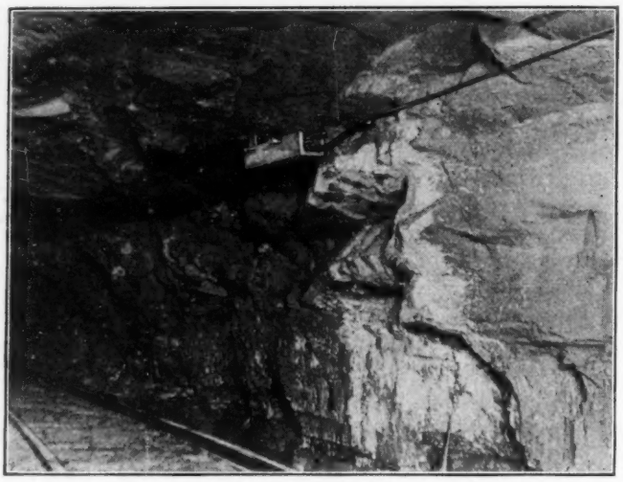
MANY a man passing along an unwired roadway with a drill over his shoulder is unaware when he arrives at a section that is wired. He goes blissfully along till the drill makes contact with the wire, when he falls as if shot and is injured and possibly killed.

It is necessary, therefore, to mark clearly the place where the wire ends or, to speak more correctly from the point of view of safety, where the wire begins. It is not only the man with a drill who needs the warning; any man is likely to fail to see the wire. It is customary to go along watching for lumps of coal in the road and not looking for low spots or suspended wire near the roof.

The traveler relies on his practice of stooping low enough to protect himself against low roof, but he often fails to bend his head enough to pass safely under the trolley wire. The marking of the end of the wire should be done, as in the illustration, by a liberal use

Section Switches Marked

Where there is a short circuit on the rail there is risk of a mine fire, and where there is gas or a coal readily generating gas, of an explosion also, in which, of course, coal dust also may function. It should be made easy to find the section switch, hence the bright whitewash mark on the wall.



POINT OF DANGER—WHERE WIRE BEGINS

At this point a little whitewash may save a life. It is usually only after a man has traveled several feet along a roadway strung with trolley wire that he is cognizant that the wire is present. A glaring splotch of whitewash will call his attention to the conductor and to the imminence of danger more quickly than will a sight of the wire itself.

of whitewash, so much in fact that the traveler even with a poor light will not fail to see it. It should be continued down as near as possible to the mine floor, for that is the level at which his eyes will in all probability be directed.

Another illustration shows a sign placed to draw attention to an electric switch whereby the trolley line to the inby can be rendered dead. In case of a short circuit such a switch may save a life or a locomotive and may prevent a fire or explosion, and, in consequence, it should readily be found by anyone who desires to throw it. No man can make speed with his eyes pinned to the roof. If he would run to a spot, that spot must be indicated near the floor, so that it readily may be seen.

However, as anything too near the floor is apt to get heavily covered with dust and plastered with mud, the mark shown in the illustration is placed just so high as to be well clear of the road dust and mud and low enough to be seen by a man whose vision is directed on the road. For these illustrations we are indebted to the National Safety Council.

Reading Company Erects Attractive Bridge For Protection of Public

AT THE Silver Creek Colliery of the Philadelphia & Reading Coal & Iron Co., near New Philadelphia, Pa., a wagon road crossed the mine track at a grade crossing. This was a particularly dangerous crossing because of the exceedingly sharp curve made by the track around the hillside. As both the wagon road and the mine track were in continual use something had to be done to overcome the ever present imminence of accidents.

Accordingly the engineering department of the coal company designed the reinforced-concrete bridge shown in the accompanying illustration. This bridge removes all danger of vehicles being struck by mine locomotives or trips. It is simple and comparatively cheap in construction and pleasing to the eye.

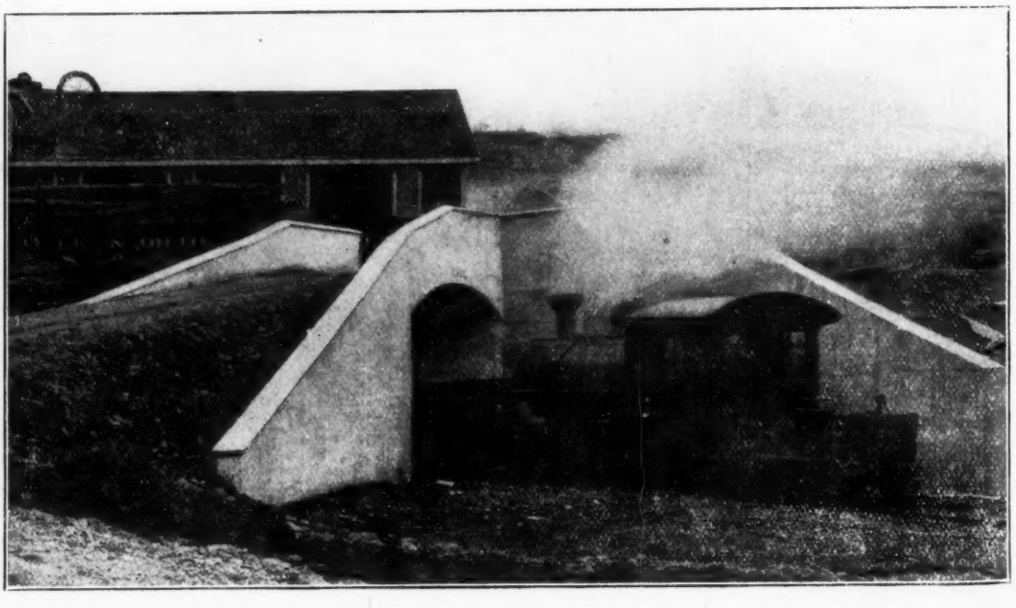
More and more as time passes coal companies are realizing that at practically the same cost attractive structures can be built in place of the eyesores that have been erected around the mines in the past. They have also found that attractive buildings tend to improve the morale of the men and make them proud of the places at which they work and of the firm that employs them.

Only One Company in the Williamson Coal Field Has Surrendered to Union

THERE has been but one defection so far in the ranks of the coal companies operating in the Williamson field, where there has been a strike since early in July. According to an announcement made by David Fowler, of Scranton, Pa., the Alma Thacker Coal Co., of Columbus, Ohio, with a mine in the Mingo County field, has signed the scale of the United Mine Workers. The mine, which is on the Kentucky side of Tug River, has been idle since the strike was called.

Concrete Road Bridge

This bridge is not only a sightly structure but eliminates danger of accident at what before its erection was a perilous grade crossing.



Discussion by Readers

Edited by
James T. Beard

"How to Test for Firedamp"

What is the correct height of flame cap corresponding to a given percentage of gas? The kind of lamp used in testing and the oil burned important factors.

THE instructive diagrams and accompanying explanation of how the heights of the flame caps shown were ascertained, submitted by James Ashworth, Mining Engineer, in *Coal Age*, July 29, p. 236, will doubtless prove of great interest to those whose duties are to examine the mines and determine their condition in respect to the safety of the men working therein. Upon the fireboss falls this duty and, in British Columbia, he must assume the responsibility of withdrawing the men from the mine should the proportion of gas reach 2½ per cent, which the chief inspector of mines for the province has determined to be the "withdrawal percentage."

In a previous letter, May 27, p. 1107, I drew attention to the difference in the heights of flame cap for different percentages of gas given by different authors. Since

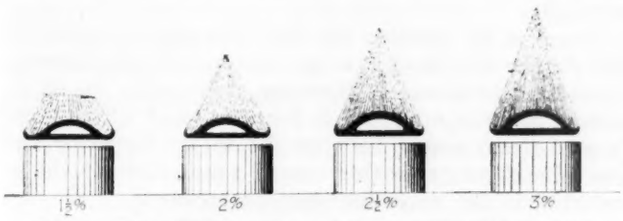


FIG. 1. FLAME DIAGRAM, HOME OFFICE, LONDON

then, the letter of Mr. Ashworth, referred to above, has appeared in *Coal Age*. In that letter, Mr. Ashworth shows clearly that the height of flame cap, for any given percentage of gas, varies considerably in the use of different lamps and different illuminants; also, when the test is made under varying conditions.

I wish now to submit three diagrams giving the heights of flame caps for different percentages of gas. One of these diagrams was issued by the Home Office,

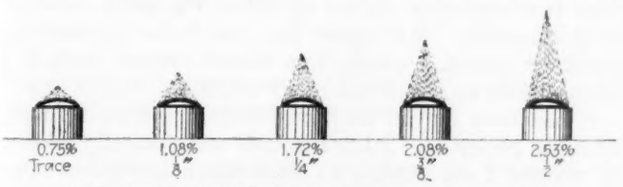


FIG. 2 DEPARTMENT OF MINES, COAST AND NICOLA DISTRICTS

"for the use of miners." The other two diagrams are issued by the Department of Mines in British Columbia, the first giving the height of flame cap for different percentages of gas, as determined for the Coast and Nicola districts; and the second giving the same information for the Crowsnest Pass district. Both the instructions from the Home Office and those from the Department of Mines are entitled "How to Test for Firedamp."

It will be observed that the diagram, Fig. 1, does not give the height of the cap in inches, as do the diagrams, Figs. 2 and 3. I am led to assume that the height of cap for 2½ per cent of gas, in Fig. 1, is about the same as that shown in Fig. 2 for practically the same percentage. But the height of cap for this percentage of gas in the Crowsnest Pass district

FIG. 3. CROWSNEST PASS DISTRICT

(Fig. 3) is given as $\frac{5}{16}$ in., which is considerably less than the height in Fig. 2.

What seems to me strange, however, is that in neither of these issues sent out by the Home Office or the Department of Mines is any mention made of the kind of lamp used or the illuminant burned. Neither is any reference made to the conditions surrounding the test referred to by Mr. Ashworth. Now, no one will doubt the necessity of obeying the mandates of the Home Office and the Department of Mines; but it seems unreasonable to expect men to fulfill these requirements when the available information is so diverse.

Mr. Ashworth's reference to the need of standardization of safety lamps used in testing, seems to me opportune. I take it, however, that his suggestion of a possible requirement of an increased lighting value of the lamp has no bearing on the matter of testing for gas; but relates to the need of greater illumination for the better detection of other dangers in the mine.

Cumberland, B. C., Canada. COAL DIGGER.

What Should Be the Duties and Authority of Safety Inspectors in Mines?

What is the status of the mine-safety inspector, and how far does his authority extend? Can he be employed on other work without making him less responsible for the safety of workers and of the mine?

FROM time to time mention has been made in *Coal Age* regarding the necessity of employing safety inspectors or safety bosses in mines. What should be their duties and how far should their authority extend has, however not been clearly defined. In my opinion, this is a matter well worthy of discussion.

In a number of mines where I have worked there have been employed safety inspectors charged with various duties that naturally vary with the conditions in the several mines. Owing to these varying condi-

tions, it is clear there can be no set rules laid down that will be applicable to all mines. However, the point I wish to urge is the disregard that is often paid to the instructions of the safety inspector.

For example, the mine foreman who rightly has the full charge of the mine, will frequently have his own ideas as to safety. When his attention is called, by the safety inspector, to a bad roof condition on the haulage road it is not uncommon for him to reply, "We have hauled coal for months under worse roof than that and never had an accident." Unwilling to increase the cost, he puts the matter aside and nothing is done, until some day a driver is caught and another fatal accident recorded.

Again, there are mines where the manager has designated one or more men to be employed as safety inspectors. For two or three weeks they perform their duties as such, and then the mine foreman calls on them for other necessary work. He orders them to inspect the mine for safety Mondays and Wednesdays only. A little later, the safety inspection is made but once a week. All this time the work of these men is charged to safety inspection and the foreman's cost-sheet gets the benefit, at the expense of the safety of the mine workers.

Why Should There Be Any Clash of Authority Between the Foreman and a Safety Inspector

Now, it is not my wish nor do I want to be understood as questioning the authority of the mine foreman in all matters underground. It would seem, however, that he should co-operate with his safety inspectors and not interfere with their regular work as such, when they are supposed to be so employed. It is this phase of the question that I would like to see discussed thoroughly in *Coal Age*, for the purpose of ascertaining if there can be any need of clash of authority between these two officials.

In my estimation, a safety inspector should be a practical miner who has performed every class of work, such as trackwork, timbering, digging coal, shooting rock, and is familiar with the dangers of mule and motor haulage, besides having a full knowledge of the properties and behavior of gas in mines. He should be a man, say from 24 to 35 years of age, and capable of giving first-aid in case of accident.

It is my belief that a safety inspector should not be called on to perform other work. In the interests of safety, he should visit every working place in the mine at least each alternate day, at the same time inspecting all roads, travelingways and air-courses, giving particular attention to pillar workings and the condition of any abandoned portions of the mine. He should make out a daily report for the mine foreman and a copy should go to the superintendent. These reports should all be signed by the foreman and superintendent, respectively, to show that they have been examined before being placed on file for reference.

Safety Inspector as Chief Assistant Foreman

One of the duties of the safety inspector should be to see that all danger signals are properly placed and kept in good condition, and that the rules and regulations of the mine are posted on the surface where they can be seen and read by all employees. The safety inspector should be called into conference on all matters pertaining to safety, including the drafting of rules and regulations pertaining thereto.

In short, I believe that greater safety is assured where the safety inspector is authorized to act as the chief assistant to the mine foreman, in everything pertaining to the safe operation of the mine and its healthful condition. In this respect, all assistant foremen and other underground bosses should be required to respect his suggestions and instructions. Where the mine is electrically equipped the safety inspector should give particular attention to the condition of the wiring and all devices or safeguards used for the protection of the men.

Question of Cost Second to That of Safety

Every safety inspector should have a thorough knowledge of the mine law, and it should be his duty to see that its requirements are fulfilled in respect to the ventilation of all working places, roads and travelingways and that crosscuts are driven at the proper distance apart in all. Where brattice is required to cause the air to sweep the face of the coal the inspector should see that it is in good condition and performs its proper function.

If the mine is generating gas it is the duty of the inspector to see that each miner understands how to use his lamp. Every lamp should be carefully inspected by him as he passes around the mine. The safety inspector should be prominent in all first-aid work, organizing and instructing a first-aid and rescue team. He should encourage all employees to take the necessary training that would fit them for service in case of need.

There is no question but that due regard should be had for the cost-sheet so as not to unnecessarily increase expenses in the mine. However, no expense should be spared to make a mine safe for work, and where there is any disagreement between the safety inspector and the mine foreman in this regard the matter should be referred to the superintendent or manager.

———, W. Va. Ostel Bullock.

Assistant Mine Foremen and Safety

The assistant mine foreman who performs his work thoroughly is, in effect, a safety inspector. His duties bring him into close daily touch with the men and the conditions affecting their safety.

WHEN the duties of assistant mine foreman are properly performed it is my belief that they have more to do in maintaining safe conditions in a mine than the respective duties of either the mine foreman or the fireboss. My reason for this belief is that the assistant foreman comes into closer contact with the miners than either of the other officials.

It has been my lot to have filled, at different times, both the position of mine foreman and that of fireboss. At present I am serving as an assistant foreman. The principal duty of an assistant foreman is to examine the working places of the mine or section of the mine in his charge and see that they are kept in a healthful and safe condition. This work brings him in close touch with each miner while the man is at work in his place.

On the assistant foreman devolves the duty of making a close examination of every condition that would make a miner's place unfit or unsafe for work. The assistant must see that all loose coal and rock are taken down or properly posted, and that the miner sprags his coal when making an undercut. Where a

uniform system of timbering is employed he must see that the posts are set at the right distance apart and that those in each succeeding row are staggered.

Another important duty of the assistant, when blasting is performed in the mine, is to see that the miner drills his holes in the proper place and observes every precaution in charging, tamping and firing his shots. He must observe where each miner keeps his powder and the manner in which he makes up his charge. Indeed, the proper and safe supervision of the work of each miner to see that it is properly performed is no simple task, but requires patience and constant watchcare if accidents are to be avoided at the working face. Every shot must be carefully inspected and no shooting off the solid permitted.

Ventilation, Lamps, Room Sights, Timber Supply Form a Part of the Assistant's Duties

The proper ventilation of each working place is another matter requiring the attention of the assistant foreman. He must see that breakthroughs are made of sufficient size and at the required distances apart. Where brattice is needed to conduct the air to the face and keep the place clear of gas the assistant must see that it is properly maintained. If safety lamps are used, these also call for his careful supervision. It is the assistant's duty to instruct each miner in everything pertaining to the man's safety and that of his fellow worker.

Frequently, one of the most troublesome tasks of an assistant foreman is to see that each miner keeps his place on the sights and does not rob the pillar separating his place from that next adjoining. If not closely watched, miners are pront to widen out the faces of their rooms, particularly if they are in good coal. This robs the pillars and results in much loss of coal when these pillars are withdrawn. Robbing the pillars in the first working both weakens the roof and invites a squeeze and is both costly and dangerous.

It is up to the assistant foreman to see that each miner has his proper supply of posts, cap-pieces, rails and ties and that none of this material is wasted, thrown aside in the gob or lost when a place is abandoned. In this respect alone the assistant foreman can save the company many times his own salary.

It generally falls to the lot of the assistant foreman to take the air measurements once a week, as required by law, and report these in a book kept for that purpose. Many of the lesser troubles must be settled by the assistant where a miner has a grievance and desires an allowance made him or there is a difference between him and his buddy the assistant foreman can often make things satisfactory without the matter being referred to the foreman for settlement.

What has always seemed strange to me is that, in view of the important work performed by the assistant foreman, his duties are not specifically enumerated in the Bituminous Mine Law of Pennsylvania. It is true that the law requires the assistant foreman, in the absence of the foreman, to perform the duties of that office (Art. 4, Sec. 1 and 24). The last-named section also makes the assistant foreman liable to the same penalties as attach to the mine foreman for any violation of the Act.

The law also requires (Art. 4, Sec. 10) each assistant to make a daily report in a book provided for that purpose. The law fails to state, however, that the assistant shall sign his report, which seems to me an important omission, particularly as the law requires the mine foreman to make and sign his own daily and weekly report (Sec. 18). Where there are two or more assistant foremen how can it be told who has entered a report that is not signed?

Attention has already been called in *Coal Age*, Sept. 2, p. 497, to the indefinite and uncertain expressions that so frequently occur in our mining laws, where a mine inspector cannot properly interpret the law, how can it be expected that an assistant foreman will be able to understand what the law requires of him. Again, if the law requires the assistant to perform the duties of a foreman in the latter's absence from the mine, why should he not be required to hold the same grade of certificate as the foreman? My belief is that the assistant foreman should be fully as competent as the foreman in matters pertaining to the safe operation of the mine.

Oliver Young.
Nu Mine, Pa.

Preventing Premature Explosion in Electric Firing

Safety in electric firing is only insured by installing a safety switch in the firing cable at a point that will eliminate all possible accidental sources of electricity and be safe for firing the shot.

Referring to the suggested soldering together of the lead wires of an electric fuse or detonator, to prevent premature explosion in blasting, mentioned by R. H. Sisley, *Coal Age*, Sept. 9, 546, permit me to say this is a point of long standing and one that has been considered from different points.

During the year 1916 a bad accident occurred when a miner carrying some explosive cartridges and a primer with an electric blasting cap or detonator attached, was passing an electric motor. In some way the leads of the detonator came in contact with a charged portion of the motor.

It was recommended, at that time, that the bare ends of the detonator leads be twisted together to avoid accidental or premature firing of the cap, and this practice was adopted at the Explosives Testing Station of the Bureau of Mines.

This method of insuring against the accidental discharge of electric detonators, by short-circuiting the current by either twisting together the bare ends of the lead wires as stated above, or by lightly soldering them together, as suggested by Mr. Sisley, is of value only in handling or transporting detonators up to the time of completing the charging of the hole.

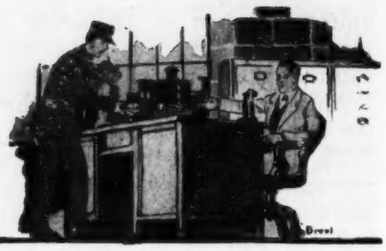
Serious accident from a live firing cable would not be averted by the plan suggested by Mr. Sisley in which he positively states that the ends are to be left sufficiently free to permit of connections being made to the firing cable before the soldered joint is broken. The only safe way to prevent accident by reason of the firing cable becoming accidentally charged, is to have a switch in the cable at a safe distance from the working face and between it and all possible sources of electricity.

A. J. Strane, Head Explosives Division,
Reynolds Experimental Laboratories,
Tamaqua, Pa.

Inquiries of General Interest

Answered by

James T. Beard



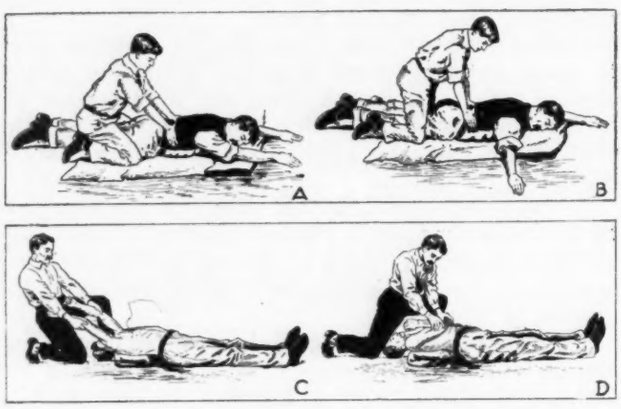
Methods of Applying Artificial Respiration

KINDLY explain the difference between the three methods of applying artificial respiration, which I understand are the following: The Prone method; Schaefer method and the Sylvester method. I would like to ask if there is any advantage in applying one or the other of these methods when a man is overcome by blackdamp, or has been rescued from drowning and is unconscious. STUDENT.

Jasonville, Ind.

The first two methods mentioned by this correspondent are one and the same, the Schaefer method often being called the "Prone method," because the person treated is laid face downward on the ground, as shown in the upper half of the accompanying figure. As indicated at *A*, the patient is laid flat on his stomach with arms outstretched and face turned to one side to admit of easy breathing when revived.

In this method the operator kneels astraddle of the man's thighs, spreading his hands over the small of the back in a manner to throw pressure on the lower ribs



TWO METHODS OF APPLYING ARTIFICIAL RESPIRATION

and expel the air, gas or water from the lungs. Having done this the operator swings forward to the position shown in *B*, thus throwing a portion of his weight onto the lower chest and abdomen of the patient. This pressure is applied moderately but firmly for two or three seconds and then relieved by swinging backward, the process being repeated, alternatively applying the pressure and relieving it again, at the rate of 14 or 15 times a minute, which is the normal rate of breathing when at rest.

The Sylvester method of applying artificial respiration is shown in the lower half of the figure. Here the patient is stretched on his back, a folded coat or light pillow being placed under his chest and back. The operator kneeling at his head, first seizes the patient's arms just below the elbow and draws them backward above the man's head, as indicated at *C*. After a couple of seconds the operator swings forward, bending the patient's arms and doubling them against the man's chest, in a manner to bring pressure thereon and expel the air, gas or water from the lungs, as indicated at *D*.

Like in the previous method, this process is repeated alternately, the operator swinging backward and forward at the rate of 14 or 15 times a minute. The object in both of these methods is to invite and restore respiration by imitating the action of breathing, which is automatic in life. Present-day practice commonly gives the preference to the application of the Schaefer or Prone method first described.

The Prone method would certainly prove more advantageous for reviving a person rescued from drowning, as it would give a better opportunity for the expulsion of the water from the lungs than when the man is laid on his back. Some may prefer to apply the Sylvester method when a man has been overcome with gas, believing that the gas could escape from the lungs more freely when the face is turned upward.

However, it must be remembered that it is more difficut to prevent the tongue from falling back and obstructing the throat, where the patient is laid on his back than when he is laid prone on the ground with his face turned slightly to one side, which causes the tongue to drop forward in the mouth and leaves the throat clear. In any case, it is important to see that the throat passage is left unobstructed. The application of smelling salts to the nostrils will often prove beneficial by inviting a sneeze. Artificial respiration should never be abandoned for two hours or more, or until a physician has pronounced life to be extinct.

Capacity of Lungs in Breathing

WHAT is the average normal capacity of the lungs of an adult person; or how much air inhaled in breath; and what percentage of carbon dioxide is contained in the exhaled breath of a man?

————, Col. RESCUE FOREMAN.

The average adult person's lungs should be capable of holding about 300 cu.in. of air. In the act of breathing, however, the flow of air into and out of the lungs ("tidal air") rarely exceeds 25 or 30 cu.in. at a single breath when the person is at rest. The air remaining in the lungs ("residual air") prevents their collapse, which would prove fatal should that take place.

In the performance of arduous work or making any violent exertion the tidal air may be increased five or six times in volume. Practically, the volume of carbon dioxide in the exhaled breath is equal to that of the oxygen in the air inhaled, or say one-fifth of the tidal air passing in and out of the lungs.

Examination Questions

Answered by

James T. Beard

Miscellaneous Questions

(*Answered by Request*)

Ques.—The specific gravity of a body of firedamp is 0.93; what are the proportions of the mixture?

Ans.—Assume 100 volumes of the firedamp having a specific gravity of 0.93 and let x equal the volume of the gas (CH_4), specific gravity 0.559, contained in the firedamp. The volume of the firedamp being 100 and that of the gas x, the volume of air (specific gravity 1) is $100 - x$.

Now find the relative weights of the gas and the air by multiplying each respective volume by its specific gravity; thus,

Gas, $\quad 0.559 \times x = 0.559x$

Air, $\quad 1 \times (100 - x) = 100 - x$

Adding these together gives the total relative weight of the 100 volumes of firedamp; thus, $(100 - x) + 0.559x = 100 - 0.441x$ lb.

Finally, since the specific gravity of the firedamp is found by dividing this relative weight by its volume,

$$Sp.gr. = \frac{100 - 0.441x}{100} = 0.93$$

and

$$x = \frac{100 - 93}{0.441} = 15.87 \textit{ per cent.}$$

Ques.—In the following analysis of the air in a mine, state what is the vitiating gas present, and what is its percentage: Oxygen (O), 19 per cent; carbon dioxide (CO_2), 0.75 per cent; nitrogen (N), 80.25 per cent. What is your opinion of this atmosphere?

Ans.—The vitiating gas, in this case, is the carbon dioxide, the oxygen and nitrogen being constituents of the original air.

The percentage of carbon dioxide present is three-quarters of one per cent. This is too small a percentage to have any appreciable effect on either life or flame. The presence of carbon dioxide in the air breathed is first felt when three per cent is present, when breathing becomes slightly laborious, while fourteen per cent of this gas is necessary, in normal air, to extinguish an ordinary candle or oil-fed flame.

Ques.—How would you proceed to reduce the number of doors in a mine and still maintain a good circulation of the air current? What advantage would be gained by so doing?

Ans.—Wherever practicable, an air bridge should be built at the mouth of each pair of cross-headings, as quickly as their development will warrant the expense. By this means each pair of headings will be ventilated by a separate air split and the haulage road will no longer be obstructed by a door used to deflect the air into those headings.

The advantages gained by thus splitting the air current are the following: The circulation of a larger quantity of air by the same power; better air furnished to each split; the circulation kept under better control; and less danger of trouble caused by local explosions of gas or dust.

Ques.—How shall main doors be placed?

Ans.—The law provides (Art. 10, Sec. 11) that all main doors shall be so placed that when one door is opened a second door having the same effect on the air current, shall be closed, so that there shall be no temporary stoppage of the air current when one of these doors is opened.

Ques.—If the velocity of an air current is 200 ft. per min. and the quantity of air passing is 10,000 cu.ft. per min., what is the length of a side of a square airway passing this quantity?

Ans.—The sectional area of this airway is found by dividing the quantity of air in circulation by the velocity of the current; thus, $10,000 \div 200 = 50$ sq.ft. The airway being square, each side is $\sqrt{50} = 7.07$ ft. in length.

Ques.—A mine map shows a plus 400 ft. at the head of the shaft and a minus 300 ft. at the foot. There a level gangway is driven north, a distance of 600 ft., at which point a plane is started and driven on a pitch of 30 deg. for a distance of 600 ft.; what is the tidal elevation at the head of the plane?

Ans.—The elevation at the top of the shaft being +400 ft. and that at the bottom —300 ft., the depth of the shaft is 700 ft. The gangway being level from the foot of the shaft to the foot of the plane, its elevation is —300. Finally, the pitch of the plane being 30 deg. ($\sin 30° = 0.5$), its rise is $0.5 \times 600 = 300$ ft. The elevation at the head of the plane is, therefore, zero or sea level.

Ques.—An airway, which is square in cross-section, is 4,000 ft. long and passes 10,000 cu.ft. of air per min., under a water gage of 1.7 in.; what is the size of the airway?

Ans.—Calling a side of the square airway d, the length l, the quantity of air in circulation Q and the unit pressure p, we have $p = 4\,klQ^2/d^5$.

Then, since the unit pressure corresponding to a 1.7-in. water gage is $5.2 \times 1.7 = 8.84$ lb. per sq.ft., we have in this case

$$8.84 = \frac{4 \times 0.00000002 \times 4,000 \times 10,000^2}{d^5} = \frac{32,000}{d^5}$$

$$d = \sqrt[5]{\frac{32,000}{8.84}} = 5.15 \textit{ ft.}$$

Ques.—Find the quantity of air passing per minute, in an airway 14 ft. 6 in. by 6 ft. 9 in., when the anemometer registers 542 r.p.m.

Ans.—The sectional area of this airway, estimated by the dimensions given, is $14.5 \times 6.75 = 97.875$ sq.ft. Assuming that the reading of the anemometer is a fair indication of the average velocity of the air current passing in this airway, the volume of air in circulation is $97.875 \times 542 =$ say 53,000 cu.ft. per min.

Perfecting Uniform Cost Accounting in the Bituminous Coal Industry*

Federal Trade Commission Reports Have Promoted Widespread Interest in the Movement—Allowance for Depreciation and Depletion Charges Conspicuous Factors—Contingent Reserve Recommended

By William B. Reed
Washington, D. C.

William B. Reed
Secretary, National Coal Association

PRIOR to the war little attention was given by coal operators to the fundamentals of cost accounting. Some talked in terms of long tons and others in terms of short tons. Some few operators had cost systems that were complete and exhaustive, others had systems not so complete. The major portion had systems either crude or misleading or had none at all. In some few sections of the country coal operators' associations had been formed for the mutual advantage of the operators, and in these associations some attention had been given to the study of mining costs of individual operations and of fields. General interest in the coal industry in cost accounting was first aroused by Edward N. Hurley in 1914 when with the Federal Trade Commission. In August, 1917, the Federal Trade Commission sent out a blank form of coal cost sheet to bituminous coal operators, asking for the returns of the year 1917 to that date. This form probably was the first attempt at uniformity in the industry, and became to some extent, at least, the basis of further attempts to collect cost statistics on the part of governmental agencies. On Jan. 1, 1918, the Federal Trade Commission issued a second form differing to a considerable extent from the form prepared for use during 1917. Coal costs were collected on that basis during the calendar year 1918 by the Federal Trade Commission, and these costs as revised by the Engineers' Committee of the Fuel Administration were the basis of the prices granted by the U. S. Fuel Administration during governmental control of the industry.

The Federal Trade Commission prepared a third form in 1919 that was much more elaborate than those which had preceded it, and, in the opinion of coal operators and accountants who had made a study of coal costs, that was absolutely unworkable in the vexatious refinement into which the items of cost were divided. Failure of Congress to make a sufficient appropriation for the commission to carry out the work of collecting these items in detail, coupled with the opposition raised by the operators and the antagonism of the Engineers' Committee of the Fuel Administration, resulted in the failure to introduce this form, and during the year 1919 no costs were collected by this agency of the Government. On Jan. 1, 1920, the Federal Trade Commission issued a fourth form embodying some of the features of the preceding ones but very much abridged and containing several departures from their preceding plans. Careful study of this form by accountants of the coal-mining industry developed strong objection to some of its features. To test the right of the commission to require reports in a form which practically meant the admission of the power of the Federal Trade Commission to regulate the manner of keeping books for bituminous-coal operators, an injunction suit was instituted by the Maynard Coal Co., asking the court to restrain the Federal Trade Commission from requiring such reports. This case was tried before Justice Bailey in the Supreme Court of the District of Columbia, and a preliminary injunction was issued.

In the autumn of 1917 the National Coal Association appointed a committee of competent accountants charged with the duty of devising a scheme of cost accounting applicable to the industry. This committee after mature consideration prepared a tentative short form of report sufficient in their opinion to meet the needs of the Government, and by request submitted it to the Federal Trade Commission, which accorded it scant consideration. In the winter of 1918 a second committee was appointed for further consideration of this matter. This committee gave considerable time to its study, and in the summer of 1919 submitted a report which was adopted by the directors of the National Coal Association as a standard for the industry.

This report and the forms which accompanied it have been distributed among coal operators throughout the country, and they have been very generally adopted, not only by individual companies as a complete method of

*Paper read before the convention of the American Association of Cost Accountants, Atlantic City, N. J., Sept. 24, 1920.

handling of their cost accounts, but also by various trade associations as a medium for collecting the cost of production by fields. During the period when the Trade Commission was not collecting cost data—namely, 1919—this report form was submitted to the economists and accountants in charge of the coal section, with the advice that, if it elicited their approval it would have the endorsement of the entire coal-mining industry, but sanction was not forthcoming from the commission and instead, as has been shown heretofore, that body issued a new form Jan. 1, 1920, which is still in use as a report to it by operators who voluntarily report to the commission, although the commission has been enjoined from requiring its filing by those who object. It will thus be seen that the action of governmental authorities on this subject has been at various times both helpful and harmful. The introduction of a uniform method of cost accounting, whatever its faults, was helpful and probably through no other than the Government could comparable records have been obtained from any considerable portion of the coal operators of the country.

Conditions Affect Accounting Methods

Coal mining is a wasting industry and, like other wasting industries, requires special consideration from the accounting standpoint. Many expenditures which in a manufacturing concern are properly an investment of capital and should be treated as such, are in a coal mine simply operating expense. A coal mine consists of coal deposits either owned or leased, plant, equipment and development. Conditions by which the mine is surrounded determine which of these elements is of the greatest value. After the work of prospecting has been done and development has been carried along to a point where the mine is on an operating basis, the combined value of these elements is, of course, greater than the sum of their component parts. All of these elements depreciate together, and when the coal is exhausted the remaining plant has little value. The development of the mine is a mere easement, which disappears when the mineral has been mined out.

In the mining of coal the unit of measurement is a ton of coal mined, and depreciation, depletion, and the amortization of leasehold values must all be measured by this unit. In the development of a railroad each additional expenditure is for the purpose of tapping some new territory and with the idea that the returns of revenue will continue indefinitely. The life of the units of equipment and of extensions are not limited by the fact that there is no further product to handle. On the other hand in a coal mine when the mineral for which a mining plant has been installed has been exhausted, the development is valueless. The scrap value is negligible. The equipment is usually worn out and of little salvage value because it is subjected at all times to dust, sulphur and dampness—admittedly the worst possible conditions under which machinery can be used.

In the development of a coal mine all expenditures for equipment, development, mineral, etc., should be capitalized until the point is reached when the mine has reached its normal or projected capacity; until the houses have been constructed to properly take care of the necessary employees, or until the development has been carried to the extent with which normal output could be produced under normal operating conditions. Beyond that point there should be no additional charges to plant and equipment unless such additional charges will materially and permanently increase production or decrease production costs. Under this method of treatment all additional installations of mine rails, locomotives, mules, mine cars and items of like equipment made necessary to maintain production to its normal or projected capacity because of the increased length of haul or depth of workings, should be charged to expense, since their installation will not materially increase the productive capacity of the mine. Any other method of handling can only result in overcapitalization and, in the later years of operation, high or inadequate depreciation charges. It is therefore considered advisable to take these items into expense currently instead of borrowing earnings from the future through the capitalization of charges which do not increase the productive capacity of the mine.

Probably the most difficult thing with which the coal operator has been confronted is the determination of adequate rates of depreciation for plant and equipment and of depletion of mineral. Conditions are so much at variance in different mines, equipment is subjected to so many different kinds of exposure, that to establish a rate of depreciation on any particular class of equipment as a whole is practically impossible. The only adequate appraisal of depreciation is that measured by the exhaustion of the mineral. Assuming an operating plant to have been developed with a capital expenditure of $100,000, and the recoverable units of coal to be 5,000,000 tons, dividing the value by the recoverable units we have a depreciation rate of 2c. per ton, which will with certainty return the original capital investment by the time the mineral has been mined out.

Shifting Basis of Price Setting

In the event that additional installations calculated to increase production are made, these will necessarily be capitalized and a new rate per ton be obtained by dividing the remaining mineral into the capital account not depreciated. A correspondingly higher rate of depreciation will obtain. Should the mineral be added to, necessarily the situation will be reversed and a lower rate of depreciation will follow. Of course, in the instance in which the life of the lease is shorter than the life of the mineral and the improvements revert to the lessor, as they usually do in the bituminous-coal mining industry, the basis of depreciation will be a rate obtained by dividing the plant value by the number of years of life of the lease.

In the matter of depletion of the value of mineral deposits in most coal mines the element of uncertainty as to quantity does not exist to the same extent as in other minerals. Recoverable tons in a coal mine may be estimated with reasonable accuracy by any competent mining engineer familiar with the coal measures. Depletion must necessarily be measured by the tons of recoverable coal. One of the points of difference between the generally accepted theory of accounting with relation to the bituminous-coal mining industry and the theory advanced by the Federal Trade Commission in their cost forms is on the question of the value to be depleted. The Trade Commission insists that the cost price is the amount to be recovered through depletion charges. Coal operators insist upon the privilege of recovering as cost the value placed by revaluation as of March 1, 1913, to which they are entitled by the Federal income tax laws. Indeed it is reasonable to maintain that not only this value but instead the replacement value should be

taken up in cost, especially when the costs as ascertained are to be used by a governmental agency, as has been the case in the past, as the basis of fixing prices for the sale of the product.

A tract of coal which may be profitably mined cannot be picked up from day to day as a manufacturer can replenish his stock of raw material. It is necessary that the coal operator, before embarking upon a mining venture, have a sufficient coal reserve to last him for a number of years. The average life of a coal mine probably is thirty years. It is, to say the least, imprudent if he does not provide out of his earnings a fund sufficiently large not only to return his capital but also to provide a fund which will replace his mineral in kind at the price which he will have to pay for it when needed, unless he expects, of course, to retire from business with the exhaustion of his present mineral holdings. It is contended that margins between cost and selling price as determined by the method which allows only the cost of mineral sometimes purchased as much as fifty years ago do not give a true margin of profit and are misleading to the public and operator alike. When a coal operator sells his coal he is selling not only his product but a portion of his capital as well, and he should include in cost certainly the value exempted to him for tax purposes, if not indeed the full replacement value.

What is true of the depletion of mineral is true to some extent of leasehold values. A profitable mining lease which had a salable value on March 1, 1913, whether it cost the owner anything or not at the time of its acquisition, should be recoverable by him by appropriate amortization charges pro-rata with the exhaustion of the mineral.

Unusual Hazards Hedge the Industry

It frequently happens that a coal-mining property has been purchased for a lump sum, no separate value having ever been assigned to plant equipment or mineral and in such cases it is necessary that the depreciation and depletion be calculated as a whole on the full purchase price.

Coal mining is a hazardous occupation. No insurance company has yet been found willing to insure against the hazard of mine fires, gas and dust explosions, surface breaks with resultant floods or the cave-in of the surface. Practically the entire value in a coal mine may be wiped out by an explosion or some other catastrophe. The only possible insurance against such a risk in mining is that set up by a correspondingly greater return on capital sufficient to insure the operator who is willing to assume such a risk that in the long run his operation will be a winning proposition. For this reason he should set up as an item of current cost an amount per ton which will reasonably insure against such a catastrophe. If this were a commercially insurable item it would be treated as an item of legitimate expense, not only from the standpoint of cost but also as an item properly deductible under the income tax laws. Even though it is not so permitted by the Internal Revenue Bureau, and although the operator must pay taxes upon such an item, he should nevertheless make provision for it in his accounting, and in any governmental price fixing a reasonable amount should be allowed for such contingencies.

It is the custom of bituminous-coal operators generally to treat the coal burned under the boilers for generation of power as an item of expense. It is admitted that the labor cost of producing this coal has already been taken up in "Labor"; that the supplies have been accounted for and that this coal has borne its share of the necessary burden of overhead. It is contended by the Federal Trade Commission that this item should not be included in cost, but that the divisor for coal cost should be the number of tons of coal sold rather than the number of tons of coal produced. The total cost is practically the same from either viewpoint, but a large majority of the operators prefer to include such items in cost; first, because their depreciation and depletion records are handled on that basis; second, because many coal companies operate more than one mine, one of which generates its own power, the other of which purchases from some public utility or from another coal company. Many have costs running over a series of years in which during the first period power was generated and in the second period power was purchased. In order to show the economy of such changes in mode of operation and for internal comparisons where power is received from sources of different nature it is necessary to include the value of such coal in the power cost, and in the form proposed by the National Coal Association it is so treated. The customary plan is to charge such fuel at the cost of production, not including any selling expense, or at the market price if below the cost of production.

Miners' Houses Stump Cost Experts

One of the things in which there is not a unanimity of opinion is the question of the handling of the revenue from miners' dwellings. Formerly these were considered a paying investment, chiefly because a proper allocation was never made against them for insurance, taxes, depreciation, these things being spread over the mining property or the property handled as a whole. Such houses are rented at a very low rate of rental, probably averaging $1.50 to $2 per room. In some districts these will be found to net a loss, but in districts where such properties are in the vicinity of larger towns these items will show a profit. The practice of operators is divided; some prefer to treat the rental and repairs of dwellings as an item separate and distinct from the mining operation, while others prefer to include the net loss or profit, as it may be, in the mining cost. But where so included the profit or loss should certainly be either a reduction from or an addition to cost, and not included as prime part of the mining expense.

The man who through an adequate cost accounting system knows his cost of production will most likely prove a fair competitor, since he will insist upon getting a fair profit for his product. The dangerous man in any industry is the one who assumes to be able to sell at the lowest figure without any adequate knowledge of his production cost.

Workers in 23 Indiana Mines Strike: Want Coal at Production Cost

TWENTY-THREE mines in the Clinton coal field in Indiana were idle Sept. 24 due to a strike of workmen resulting from a dispute with operators regarding the price the men should pay for coal. The miners want coal at actual cost of production, while the operators ask $4.25 per ton.

Mine Safety Experts Discuss at Milwaukee Accidents, Health and Welfare

Ballot Favors Increase in Dues of Mining Section, National Safety Council —Industrial Nurses Biggest Factor in Americanization—Keen Discussion on Vocational Training and the Standardization of First-Aid Contests

By R. Dawson Hall
New York City, N. Y.

MEETING at Milwaukee, Wis., from Sept. 27 to Oct. 1, the National Safety Council set a new record for large attendance, number of papers presented and increase in interest, incidentally conducting a "No Accident Week" as a part of its community safety work. At least 2,500 persons were present. The annual meeting was held on Monday morning, Sept. 27, and was opened by an address of welcome delivered by Mayor Daniel W. Hoan. The usual reports from the president, the general manager and six committees and the election of the directors for the ensuing year then followed.

The National Safety Council at its Milwaukee meeting elected an engineer, C. P. Tollman, chairman, Manufacturing Committee, National Lead Co., New York City, as its president for the year 1921. The expectation is that the engineering features of the council will be further strengthened during the year 1921. Pete Tollman's slogan is "Safety is merely good engineering. Wholly apart from the saving in accident compensation, safe methods are profitable to the company employing them." He has proved the motto in the practice of his profession.

In the afternoon, under the chairmanship of George P. Hambrecht, chairman of the Industrial Commission of Wisconsin, a public mass meeting was held at which Marcus A. Dow and Dr. Franklin C. Wells made addresses, the comment on which was exceptionally enthusiastic. In the evening a dance was given in the Auditorium Arena, a floor that will take care of 2,000 people without crowding. In the Auditorium Milwaukee has a meeting place in which not only the Safety Show but all the dances, banquets, main gatherings and meetings of sections could be comfortably taken care of.

Tuesday morning was occupied by a General Round Table presided over by Frank E. Morris, of the Syracuse Local Council, in which a discussion on methods of maintaining interest in safety was presented. On the morning of Tuesday the sectional meetings and special sessions began. It may be well to list these, because mining men would have found themselves entirely at home at many of the discussions which took place in them. The meetings were entitled: Public Safety, Public Utilities, Employees' Publications, A. B. C. Session (Foundations of Safety), Health Service, Mining, Automotive, Cement, Chemical, Construction, American Association of Industrial Physicians and Surgeons, Meat Packers, Metals, Paper and Pulp; Rubber, Steam Railroad, Textile, Woodworking, Safety Bulletins Session; Education, Engineering, Women in Industry; Grain-Dust Explosion Hazards; Electric Railway, Employees' Benefit Associations, Local Council Officers; Boy Scouts. Nearly all of these except the meeting of the Mining Section will be passed over, but nevertheless there are not a few which serve specific needs of safety men at the coal mines as much as of those elsewhere.

The Mining Section of the National Safety Council met for its first session on Tuesday afternoon, Sept. 28, with fifty-four persons present from all over the country, B. F. Tillson, the chairman, assistant superintendent of the New Jersey Zinc Co., presiding and making his annual address. He announced the result of the letter ballot on the proposal to increase the dues for the purpose of engaging a permanent secretary and of otherwise extending the work of the Mining Section. In the coal-mining industry 30 firms with dues of $1,372.50 yearly agreed to the proposition, 15 firms paying $675 demurred, and 121 firms with dues aggregating $4,687.50 made no reply. There are in all 166 firms, and they pay $6,735 per year in dues. Of the metal-mining companies 25 with dues of $1,372.50 a year agreed to pay the increase, 11 with dues of $457.50 voted "No," while 46 paying $1,890 a year did not vote. In all there are 82 firms in the metal-mining field paying an aggregate of $3,720 in dues.

Adding the three individual memberships paying in aggregate $60 in dues, the number voting "Yes" were 58, the "Noes" were 26, the number abstaining from using the ballot were 167 and the total membership is 251. The number agreeing to pay more are now paying $2,805, those satisfied with the dues as they are pay $1,132.50, those who did not register a vote pay $6,577.50, the total receipts being $10,515 a year. It is clear that, as the president stated, there were too many non-committal members to make any action to increase the rate a perfectly safe proposition.

Need of Vocational Training at Mines

There are many who would like the bulletin service enlarged. Fifty-two specific mining bulletins were prepared in the fiscal year just passed, but with the multiplicity of forms of mining they could not well be made so as to cover the needs of every department of that diverse industry in a completely adequate manner. The president concluded his address by appointing R. Dawson Hall, J. W. Reed and W. W. Gidley on the nominating committee.

The initial paper was written by C. A. Mitke, now a consulting engineer at Bisbee, Ariz., but formerly an engineer in the anthracite region. His address was

on "Vocational Training as Influencing Safety and Efficiency in Mining." Mr. Mitke in his paper quoted the report of the late James E. Roderick, chief of the Pennsylvania Department of Mines, to the effect that: "The education of the foreign-born workers in one branch of English alone is said to increase their efficiency about 20 per cent. Just to what extent the conditions of safety are increased are not known, but probably the percentage is as great as in the matter of efficiency."

Mr. Mitke adds: "The Federal Board for Vocational Training in its recent bulletin on 'General Mining' states that 71 per cent of the fatal accidents in the mines of Pennsylvania are among the non-English speaking employees and 90 per cent of the fatal and non-fatal accidents in Oklahoma occur among foreigners. This bears out Mr. Roderick's statement and emphasizes the need for education along these lines."

Mr. Mitke recommended vocational training on the job as well as in the classroom, urging in regard to the former that "More explicit orders should be given and an effort made to give the men a more intelligent understanding of the work they are doing. Hasty orders, merely giving a few commands without detailed explanations, are unsatisfactory both to the miner and the boss."

New Industrial Slogan To Be "English First"

Discussing the paper E. E. Bach declared that the slogan for the new campaign soon to be inaugurated in Pennsylvania by the Pennsylvania Americanization Bureau is "English First." An attempt will be made to drive this campaign in the same way as the Liberty Loan campaigns. No real progress can be made in safety till the foreigners in the mines learn the language of the country.

J. W. Reed, of the Consolidation Coal Co., said that in every campaign for safety there must be three schools—one to teach conversational English, one for the acquirement of the ability to read and write and the third, a mining school. The schools he had started had opened with forty pupils and ended with eight or nine, but no one of those who took the mining courses failed to rise in the company.

One of the pupils, who was a timberman, is now the general manager of a coal operation. The distressing effect of having four-fifths of the men drop out should not weigh heavily, for those who remain faithful give adequate return for the effort expended.

How Industrial Nurses Revolutionize Plant

Following this discussion George Martinson, safety inspector of Pickands, Mather & Co., Hibbing, Minn., delivered an address on "Industrial Nurses" and a few of the interesting features of his remarks follow:

"The foreigner in common with the rest of us has a certain pride about himself and his home, and we should respect the privacy of the home at all times. It is therefore patent that the nurse have tact in order to get the confidence of the folks with whom she is to deal. Little Joe Krakovich needs a new romper suit, and his mother would love to have him dress like Jim Fisher, who lives next door, but she is unable to cut the cloth and make it. On a friendly visit the nurse learns of the mother's wish and assists her.

"In a few days little Joe is playing with Jim and looks just as much an American. Are the mother and father pleased? Of course they are. When selecting a nurse, don't forget that qualification—she must be able to do plain sewing. She, of course, should be a graduate of some reputable training school and, if possible, one who has had a good education before going into training should be engaged. The nurse should be able to take the lead in the little social gatherings which she must promote. But after all is said, outside of her professional training, tact is really the fundamental requirement.

Safety Inspector Directs Company Nurses

"A brief explanation of our plan might be of interest to you. Our nurses are members of the safety department, and do their work under the direction of the safety inspector. They are also, of course, responsible to the general superintendent or manager of the group of mines in the district in which they work. Their responsibility to the physician concerns only the cases which he is caring for.

"That is probably better illustrated in this manner. The physician who is caring for a family where there is illness advises the department of the fact. The nurse visits them, and tries to make the sufferer more comfortable and cheerful, explaining in detail any instructions which the physician may have left. Her responsibility to that physician ends when his case is disposed of.

"In this way, it is almost impossible for the physician to make use of her as an office assistant, or send her out to apply dressings or do other work for which *he* is being compensated. The nurse, then, being responsible to the company, may feel free to make any suggestions as to the improvements in our medical service, without feeling that she has overstepped the bounds of professional etiquette.

Nurses Asked To Be Generally Helpful

"Our instructions to our nurses are simply these: 'Here is where our people live. Go out and do your best to help them keep their bodies healthy and their minds free from worry. Sympathize with and help them in their sorrow. Try and leave each home happier because you were there and, finally, try to inculcate in them the spirit of love, not only within the family but for their neighbors and for America. Remember always that in their eyes YOU are the company.'

"The instructions to our nurse may not seem explicit, but it is utterly impossible to lay out a specific plan for her to follow. She, of course, makes weekly and monthly reports of what she has accomplished, but the written and spoken words cannot begin to do her work justice. The real report can only be obtained by going into these communities and noting the changes which have taken place since the advent of the nurse.

"For example, let us take the case of an ordinary family. One of the children is sick. The nurse calls and helps make the little sufferer comfortable. Before leaving she teaches the mother a few things relating to the care of the child. She calls at this home often during the period of illness, becoming acquainted with the other members of the family and with their immediate neighbors. She learns the birthdays of the children, calls them by their first name, inquires about their school work, in fact she is interested in every affair of their daily lives.

"Soon she has established herself in the neighborhood. She remembers the birthdays of the children and comes

to them on that day with some little gift. The people begin to look forward to her visits with pleasure. The mother of this family has not been in good health and has dreaded to go to the hospital for an examination. Soon, however, the nurse will suggest this and will make an appointment with the hospital, accompanying the mother on her visit. Perhaps a few decayed teeth are the cause of the trouble. She will prevail upon her to have the necessary dental work done.

Association with Americans Completes Work

"After this work is done the mother, being again in good health, commences to take a new interest in life. Then comes a desire to improve her home. She will want new curtains and new furniture and, of course, the friend of the family—the nurse—is called upon to assist in the selection of this material. She will then wish to associate with her neighbors. The first step in this is usually taken during the canning and preserving season. The folks are brought together in a home, where the nurse has arranged for a demonstration by a person skilled in that work.

"The friendships formed at this little gathering grow, and probably during the winter they begin to meet at little neighborhood parties, sponsored by the nurse. As soon as she can associate with Americans and have the family dress like them the mother learns to laugh and to live. Then, instead of the workman coming home to a harping, nagging wife, he finds that joy has supplanted gloom, and his home is, as it should be, a temple of happiness.

"In the home where happiness reigns there you will find love, not only in the family but also love of America, its institutions and industries. When this attitude prevails among the workmen and America's industries recognize the blessed trinity of laughter, love and work we will have made a real start toward the solution of one of the great problems confronting us."

Supplementing these remarks M. D. McIntyre, also of Pickands, Mather & Co., said that one of the nurses had fixed up a home for herself as an exhibit of just what could be done in the matter of inexpensive housekeeping. She chose to purchase second-hand furniture, illustrating that gratifying results could readily be obtained without the expenditure of a large sum of money.

Nurses Not Asked to Follow up Absenteeism

Mr. Tillson inquired if the nurses followed up absenteeism on the part of the mine workers, and Mr. Martinson replied that the nurses employed by them, while under the supervision of the company, were not to be regarded as "snoopers" to find out for what good or bad causes the men were absent from their work. He said that the local safety workers were the men who made inquiry into this unfortunate propensity on the part of some workmen.

Mr. Reed, of the Consolidation Coal Co., said that this company would not permit the nurses to seek information of this kind. They regarded their work as having a right to the strictest professional secrecy. Inquiries as to absence from work were made by the safety men or by the foremen. To their investigations there could be no objection, for they were not the recipients of private confidences and were obviously engaged in business for economic and not philanthropic reasons, whereas the nurse's work was clearly defined as work for the welfare of those with whom she was brought in contact.

One member spoke of an industrial company that relied entirely on the nurses for this work. It was a mistake, in his belief, for any nurse to flash a badge of authority, and then, like a policeman, begin to make inquiries regarding a failure of the workman to fulfill his duty. Dr. Lanza said that nurses thus employed by industrial firms were known as "dog catchers." All certificated nurses have been trained for three long arduous years in the technique of helping doctors to take care of patients. Their first duty should be to the physician, and the attempt to make them independent of him was a mistake. Especially fallacious was it to encourage nurses, as Mr. Martinson's paper seems to suggest, to criticize the medical service. He believed, however, that there were forms of social work that nurses could and would do, but it should be regarded as entirely secondary to the main work, which is curing the sick.

How About the Man Who Has to Stay Home?

B. F. Tillson and R. H. Seip asserted that one of the great gains from the introduction of industrial nursing lies in the fact that it reduces absenteeism. Much of the irregular work of employees is by no means voluntary. When the wife or any of the children are sick the husband feels that he must stay at home to tend them, despite the fact that there are others better qualified than himself to take care of the family. The nurse either provides the needed assistance or she finds someone who will.

E. H. Brown, of the American Cyanamid Co., Niagara Falls, Can., said that he was contemplating the employment of industrial nurses, but he feared that too much would be expected of them in houses where there was sickness. Suppose, he said, that there were many families with sick members, and that one family in particular believed that it had a right to the exclusive assistance of a nurse and that anything less constituted the grossest neglect, what would Mr. Martinson do?

A trained nurse who was present said that in that case she would try to find someone who, under her care and supervision, would be equal to the emergency. Mr. McIntyre said that this would be treated as a special case requiring the specific attention of the management. Some special assignment would be made to that duty. Guy J. Johnson said that the Homestake Mining Co., at Lead, would bring the patient to the hospital there, which has been built amply large for that purpose.

A case was cited where a man with a wife and five children insisted that a nurse should be employed to take care of the family when the wife was sick, regarding it as his right to receive the full assistance despite the fact that he was receiving $9 a day and was fully able to meet the charge himself out of his daily earnings. It was pointed out that an analogous case existed as regards the medical man, who frequently was required by patients (who, indeed, pay him and, therefore, feel they have a real claim) to spend an excessive amount of time over one case.

Nurse May Save Doctor Much Difficulty

This difficulty would be lessened if the trained nurse were present to explain the doctor's point of view and rights in the matter, provided of course that the doctor's case were really good. Mr. Gidley said that the Phelps-Dodge Corporation did not allow its physicians, who rendered their services entirely without charge to the employees, to accept any outside clients whatsoever. Mr.

Woodburn declared that there was always a feeling against any physicians who might be appointed by a company for the medical care of its men. At Globe, Ariz., the railroad men favored the mine physician, and the mining men preferred the railroad physician, and both class of men were willing to pay the amount necessary to put their preferences into effect.

As it was already late the round-table discussion was postponed to a later date and the meeting adjourned. In the evening a "smile party" was held in the Auditorium Arena, at which about 2,000 were present. It probably would serve no purpose to describe its frivolities or the admirable pageant representing the industries with which it concluded. A magnificent chorus of men from the Elks and women from the Federal Rubber Co. completely filled the large stage of the Auditorium, searchlights lighted the room and colored balloons floated from the ceiling. Music was furnished by the Cutler-Hammer Fife and Drum Corps.

Seek Uniform Rules for First-Aid Contests

At the session of Wednesday morning the first paper presented was that by Major M. J. Shields, field director, First-Aid Division of the American Red Cross, entitled "Standardization of First-Aid Training and First-Aid Contests in Mining." Dr. Shields spoke in favor of standardization, saying that with the large labor turnover it was difficult to maintain first-aid work at maximum efficiency if the practice of one company or region was at variance with that of another. It was an expensive matter to re-train every man on entering a company team, and that was necessary if a difference in technique existed.

He advocated the use of the prone-pressure method of resuscitation, the application of iodine on open wounds with a sterile dressing, the prohibition for first-aid men of the washing of wounds except, perhaps, the cleansing, with the aid of gasoline, of such wounds as are of a greasy character, and the non-interference of first-aid men with eye injuries except so far as to protect the eye from the outside by the use of a compress and a bandage. Shock should be universally treated by application of external heat, the patient being wrapped in blankets and sent to the hospital or the doctor as quickly as possible.

Book on First-Aid Standards Nearly Ready

A new book is in preparation which Dr. Shields hoped would supplant the American Red Cross Textbook, Miners' Edition. It needs only the revision of Colonel Charles Lynch. It will be approved by the American Red Cross and the Bureau of Mines and will be submitted to the National Safety Council, Mining Section, for approval. It should leave the press Jan. 1, 1921.

In order to avoid difficulties in judging he would have all judges of first-aid contests chosen from men who have had experience in teaching first-aid work or who have had the advantage of previous experience in judging at first-aid contests. He would recommend that the judges be chosen from both physicians and laymen, two of the former to one of the latter. This layman could be a safety engineer, mine foreman or anyone connected with mining who has taken a full course of first-aid and holds either a Red Cross or a U. S. Bureau of Mines First-Aid Certificate or who has had practical first-aid experience in or around the mine.

He urges that the judges shall work as a committee consisting of two medical men and one layman, who shall progress from team to team and pass on the work as a unit. In order to keep the meets within reasonable time limits no more than fifty teams should take part in any elimination contest and not more than twenty teams in a final contest. This would avert the employment of incompetent judges and a tiresome prolongation of the contests.

In state and national meets sufficient time should be given in hours and days to prevent hurry in the "running off" of ties. No contesting team should be allowed to wear a distinctive uniform, but all should be dressed in ordinary working attire. Dr. Shields advocated that judges be paid at least their expenses, as this practice makes for competent and efficient judging.

Of forty-five companies to whom a questionnaire was sent forty-two gave first-aid training to their men; all agreed that first-aid was of value; fourteen favored the Red Cross Textbook, Miners' Edition; eleven the Bureau of Mines Advanced First-Aid Manual; fifteen had no preference; three favored other textbooks, and twelve returned no answer. As to the number of men trained in first-aid, thirteen companies declared that 5 per cent of the men were so trained; ten trained 10 per cent; two trained 15 per cent; three trained 20 per cent; three trained 25 per cent, and three other companies extended their first-aid training to as many as half their men.

Men practiced first-aid on company time with twenty-four companies. Ten companies did not compensate the men at all, while eleven companies paid them part time for such practice. At the mines of twenty-one companies instruction was given by persons not physicians. Physicians trained the men at the mines of ten companies. No replies respecting this practice were made by four of the companies questioned.

Thirteen reported that they held no first-aid contests. Fifteen said they were accustomed to hold them, while seventeen did not reply to the question that sought this information. Twenty-eight favored a proper discount table in the judging of contests; only two opposed, while fifteen had nothing to say. The Red Cross tables were favored by nineteen; six expressed a preference for the Bureau of Mines tables; six had no preference, and fourteen, if they had any choice, preferred to make no reply.

Two companies had one lay judge to three physicians; three had one lay judge to two physicians. Two had twice as many laymen as physicians in making judgments, one preferred to have an equal number of each, while one had only lay judges and thirty-six made no answer. Seventeen favored a percentage of lay judges and nine would have all physicians. There were nineteen who did not express their preferences.

Dr. Shields said that he had prepared a list by states of all physicians and industrial surgeons who had had experience in judging first-aid contests. The list covers thirteen states. He hoped during the winter to get a similar list of competent lay judges.

Would Eliminate Elimination Contests

D. Harrington spoke in favor of standardization, saying that erratic judging of contests had, in some sections, ruined first-aid work. He advocated the "elimination of the elimination contest." The teams competing should represent some state or some company division and in this way there would be only a reasonable number of men competing in one "first and final" event.

George Martinson, of Hibbing, Minn., declared that he was against contests. There was always a reaction

after they were over, and while the reaction lasted it was impossible to get the men to practice. He thought there was an overdose of stimulant and that the teams did better without it. Orr Woodburn, of Globe, Ariz., disagreed, saying that contests developed the men and that, while there might be a "letting down" after a contest, there was a tendency to "let down" all the time and the contest shook up the teams and revived their interest just when it began to flag. He believed, however, that the practice of arranging the teams in order of merit was discouraging, as there was, of course, a good deal of chance in first-aid and a good team might obtain only a poor place.

He would have no firsts, seconds, or thirds, but two classes. Those who made over 90 per cent should form Class A, and those who made between 80 and 90 per cent should be grouped in Class B. Stating that at the recent National meet only one team in sixty-eight had fallen below 80 per cent, he declared that they were one and all good teams. One team from Oklahoma had been speeded on their way with bands and the plaudits of all the citizens in the town from which they came.

To Avoid Joshing Were Minded to Go West

They did good work but their place was so low that they dreaded to go home and take the jibes of their fellow workmen. They were contemplating going West so as to avoid inevitable joshing. Yet they deserved nothing but praise. He did not believe that the suggestion that meets be held every two years instead of every year was worthy of a moment's consideration.

B. F. Tillson, Franklin Furnace, N. J., declared that first-aid was like baseball. The best team did not always win. There was always an element of uncertainty as to the performance of the men. One foolish act might land the best team quite low in the running where all were good. The mining public must reconcile itself to the fact that the contests have this dissimilarity from baseball, that there are not many contests but only a few, and there are greater chances that the decision may fail to rest with the team that is all-around the best. It is not unnatural when the best of the teams in a state contest fails to exhibit that same superiority at a national meet.

J. W. Reed, of Fairmont, W. Va., said that the Consolidation Coal Co. had mines in three states and he found it quite trying to meet the fact that there were three different standards of judging in those three commonwealths. He believed that the practice of holding one big elimination contest was wrong. He would hold them by preference every month and have the winner of the series of contests represent that mining section or company.

British Methods of Handling First Aid

James Thirtle, of Pittsburgh, Pa., urged the system of training practiced by the St. John of Jerusalem Ambulance of England, which had a graduated system, giving two certificates, a medallion and a badge for progressive studies in first-aid. Another member declared that he believed that the use of a single textbook, that of the St. John's Ambulance, prevented much difficulty at British mines. He advocated also the weekly quiz, which served to put the men on their mettle. Questions like this were asked: A man has fallen from the "first storey" (in the United States this would be the "second story") and liquid is oozing from his nose. What is wrong?"

Dr. W. A. Lynott, of Bartlesville, Okla., remarked that first-aid contests were a joke. He was opposed to medical judges unless they had received first-aid training. He had, when with the Bureau of Mines, spent two years getting up a book, to which, however, other names than his have been appended in more conspicuous position, though they had spent but ten days in its revision. He said we are still changing our books and our standards. He contended there was too much changing, and that, in consequence, there was too much uncertainty. The railroad men's book differed from the miners' books. However, he said contests, while not by any means what they should be, do good. Nearly all of them generate soreness, but it is all over in a month, and the men fall back into the harness determined to win the next year.

R. H. Seip, of Franklin Furnace, N. J., said that he felt that, with advancing experience, there must be year by year a revision of standards. The progress of first-aid must not be hampered by any narrow body of instruction that takes no account of the advances in the science of taking care of the injured.

Dr. E. R. Hunter, of the American Red Cross, said that before contests the judges should be assembled and advised as to the problems presented and their correct solution. No hurried summoning of doctors should be allowed. Dr. Sayers set a good example at the National first-aid meet at Denver by taking plenty of time to secure the right doctors and train them in the work that was expected of them.

War Training Made Medicos Good Judges

Dan Harrington, of the U. S. Bureau of Mines, said that during the war many doctors had to teach the soldiers first-aid, and many of them studied it then for the first time. In consequence there were more competent first-aid men among doctors than ever before, and at the time of the national meet it was easy to find numbers of them around Denver. One of the members, however, declared that doctors soon forget, as do laymen who have been trained in the work. It is necessary to have men, lay and medical, who by practice have kept the technique in their minds.

Orr Woodburn declared that it was pleasing to note that the sixty-eight teams at Denver went about their problems with such uniformity that the observer would have been justified in believing that they all had had but one instructor. He proposed that the report of the Standardization Committee, for that was what Dr. Shields' paper practically was, be accepted. This motion was carried unanimously.

It was interesting to note the uniformity with which the work of the judges and management of the Denver meet was praised, that meet having been signalized by strong medical support and the introduction of new methods.

J. W. Reed said that the questions given at contests were not always covered by the standards given in the textbooks. He desired standard questions and thought some care should be taken to that end. He also wanted to know what meaning should be put on the word "crushed." Did it mean a severe bruise or a fracture? Dr. Shields promised that he would give these matters careful consideration.

Dr. C. E. Julihn, of Minneapolis, Minn., an engineer with the Bureau of Mines, proposed that "It is the opinion of this meeting that standardization of first-aid work is desirable." The motion was carried unanimously.

(To Be Continued Next Week)

National Coal Association Summarizes Soft-Coal Situation

IN the opinion of officials of the National Coal Association the bituminous coal situation can be summarized in six paragraphs, as follows:

(1) Generally the soft-coal situation, from the viewpoint of output, is steadily improving but

(2) To meet all the demands for the winter, bituminous production, it is agreed, must be speeded up to approximately 12,000,000 tons a week.

(3) To reach that output production must be advanced by some 768,500 tons each week over the average for the last four weeks. Through increased car service at the mines this additional output can be attained.

(4) The Northwest priority movement will be out of the way at the close of navigation, about Dec. 1, when over 1,000,000 tons of soft coal a week will be released for the remainder of the country.

(5) In the meantime communities in the East and Middle West where shortages in supply for immediate use exist are being provided for just as rapidly as the operators, working in conjunction with committees of local retailers, can do so.

(6) Consumers will aid in the problem of adequate soft-coal supply by taking at this time only enough to last until the Northwest situation is cleared up. After that, with ample car supply in the meantime, there will be plenty of soft coal for the balance of the country for the winter.

Plan Washington Conference on Coal Prices And Conditions in Kentucky

A SPECIAL conference on the coal situation in Kentucky will be held in Washington, it was announced at Covington, Ky., Sept. 27. U. S. Attorney Thomas Slattery of the Eastern district has been summoned to Washington to discuss the coal situation. Governor Edwin P. Morrow of Kentucky sent a telegram Sept. 24 to the Interstate Commerce Commission demanding modification of the coal "priority orders." This action, he said, is necessary to prevent a coal famine in Kentucky.

Mr. Slattery sent a letter to Governor Morrow containing a copy of the Federal Grand Jury report, in which it was alleged excessive prices for coal were charged. His letter, dated Sept. 22, to the Governor, summarized the findings of the Grand Jury as follows:

(1) That the coal operators in Kentucky are charging excessive prices for coal.

(2) That said grand jury has designated fair and reasonable prices for said coal, as established by the evidence before them.

(3) That there is a serious shortage of coal for domestic purposes in the Eastern district of Kentucky, which will reach tragical proportions unless some remedy is found.

The prices recommended by the Grand Jury are reported to be as follows:

For District No. 2, containing the following counties: Harlan, Letcher and Perry, except the operations in Perry County included in District No. 3: Run of mine, $4.50 per ton; slack, $4.40 per ton; prepared sizes, $5 per ton.

For District No. 3, containing that part of Kentucky east of the eighty-fifth degree of longitude excepting Harlan, Letcher and Martin Counties, that part of Pike County on the watershed of the Tug fork of the Big Sandy River, and that part of Perry County included in District No. 2, but including the operations in Perry County of Hazard Coal Co., Diamond Block Co., Coneva Coal Corporation, Storm King Coal Co., C. H. McDonald Coal Co., Four Seam Block Coal Co., Daniel Boone Coal Co., Blue Grass Coal Corporation, Columbus Mining Co., No. 4 Coal Co., and Walker's Branch Mining Co.: Run of mine, $4.40 per ton; slack, $4.30 per ton; prepared sizes, $4.90 per ton.

For District No. 4, containing the following counties, to wit: operations in Pike County, on the watershed of the Tug fork of the Big Sandy River east of Williamson, on the Norfolk & Western R.R.: Run of mine, $4.50 per ton; slack, $4.40 per ton; prepared sizes, $5 per ton.

In all fields not included in Districts 2, 3 and 4, above enumerated, the prices should correspond to the prices designated for said fields, when the character of coal mining conditions are the same or similar, whereas the prices have been greatly in excess of those figures. In arriving at these figures we have taken into consideration the limited car supply for the mines and should the number of cars to the mines be increased the selling price should be reduced.

It is our opinion that a fair charge to the brokers or sales agents of said coal would have been one charge of 25c. per ton; whereas their commissions have greatly exceeded that sum.

Six Thousand Eastern Ohio Workers Quit, But Soon Return

TROUBLE between the operators and miners of the eastern Ohio fields on the stone question and the pay for stone work resulted in a strike on Monday, Sept. 27, with 6,000 or more miners absent from their posts on that date. The miners held a meeting on Sunday night and at that time voted to go out. Approximately half the mines in the territory of the Pittsburgh Vein Operators' Association were affected by the strike, but the operators expect the difficulty to be of short duration. Operations were continued at about fifty mines.

It was indicated by the strikers that they would not attempt to go back to work until after the convention of sub-district No. 5 at Martins Ferry on Sept. 29.

As a result of the convention representatives of the strikers voted to end the strike and go back to work. Accordingly, work was resumed in seventeen mines on Oct. 1. As a considerable number of miners declined to begin work on Friday, general resumption after the strike did not begin until Oct. 4.

Revise Scale for Day and Monthly Men In New River Field

UNDER a revision of the scale of wages paid day and monthly men in the New River field, inside day workers will receive the following pay: Motormen and machine runners, $7.18; brakemen, $6.77; trip riders, rope haulage, $6.77; skilled wiremen, $7.18; wiremen's helpers, $6.74; track layers, $7.05; track layers' helpers, $6.65; slate shooters, $6.89; slatemen, $6.65; bratticemen, $7.03; timbermen, $7.05; pumpmen, $6.70; bottom cagers, $6.85; drivers, single mule, $6.65; drivers, two or more mules, $6.77; couplers, where men are employed, $6.60; couplers, where boys are employed, per day, $4; greasers, where men are employed, $6.60; greasers, where boys are employed, $4; trappers, per day, $4; pipemen, $7.05; all other inside day labor, $6.60.

The daily wage scale for outside labor is as follows: Dumpers, $6.65; top tipplemen, $6.58; transfer operators, $6.50; trimmers, $6.50; drum-runners, $7.10; car cleaners and car droppers, $6.50; blacksmiths, $7.50; blacksmith's helper, $6.80; car repairmen, $7.06; greasers, where men are employed, $6.50; greasers, where boys are employed, $3.85; couplers, where men are employed, $5.50; couplers, where boys are employed, $3.85.

Kanawha Mine Workers Strike Too Soon

UNION miners employed by the Holdred Collieries Co. selected a very inopportune time in which to take a "vacation." While negotiations for an increase in the pay of the daymen and monthly men in the Kanawha and adjoining fields was in progress a number of the mine workers went on strike and were promptly paid off by the company and discharged. Too late they learned that had they remained at work they would have had much back pay coming to them, as the increase had been made retroactive. As it was few were taken back.

Importance of Coal Stocks in Insuring the Consumer Against Fuel Shortage*

Many Firms Store Little, Depending on Supply in Transit—Severe Storms, Railway Strikes and Transportation Tie-ups Perilous—Data on Stocks Significant—Conditions Affecting the Size of Reserves

NEWEST METHODS OF HANDLING COAL AND COKE

The coal storing and reclaiming bridge and (right) trunk line belt conveyor in the yards of the By-Products Coke Corporation, South Chicago, Ill. This is one of the biggest coal cranes in the world.

STOCKS are the consumer's insurance against an interruption of his fuel supply. As it is not the practice to store coal above ground at the mines, the quantity of fuel which is available for use at any time consists of the coal en route and of the coal already in the hands of the consumer. The first is a sort of mobile reserve; it comprises the coal on wheels and the coal on the commercial docks at the head of the Lakes and at points on New England tidewater.

Coal on wheels is a more or less constant quantity, like the raw material in process of transformation at a manufacturing plant. The docks at the head of the Lakes constitute the greatest coal-storage plant in the world, with a capacity of 15,000,000 tons of bituminous coal. The quantity on hand at the docks varies greatly, however, from winter to summer and therefore may best be excluded from figures of stocks if it is desired to make them comparable. For this reason the Lake dock coal is treated as a part of the coal in transit rather than as a part of the commercial stock.

At many plants it is the practice to carry small stocks and to depend chiefly on the mobile reserve of coal in transit. This type of plant is the first to suffer in a sudden tie-up of transportation, such as may be caused by a great storm or by a railroad strike. Storms like those of the winter of 1917-18 make unavailable the mobile reserve. The suffering at such a time is due not so much to a stoppage of production at the mines as to an interference with the delivery of coal already loaded.

Therefore, whether a given stock of coal will be sufficient or not depends on the weather. The figures show, for example, that stocks were larger in the fall of 1917 than in 1916. Yet in the absence of exceptional weather the country got through the winter of 1916-17 without actual suffering. A year later larger stocks proved insufficient because of the terrific storms.

Principles Affecting the Size of Stocks

Stocks, therefore, are a very useful barometer of the coal supply. They are the final proof of whether or not production has been keeping pace with consumption. Other things being equal, very large stocks are a sign that the market has been oversupplied and forecast a season of low prices. Depleted stocks, on the other hand, show that production has fallen behind consumption and forecast a period of active demand and consequently of high prices.

In examining figures of stocks eleven principles must be kept in mind:

(1) Averages for the country may be deceptive. Coal

*Abstract from report on consumers' stocks of bituminous coal March 1 and June 1, 1920, by F. G. Tryon, U. S. Geological Survey, September 1920.

is produced in twenty-nine states and loaded for shipment by 174 railroads. There may be an oversupply in one locality when there is a shortage in another.

(2) Averages for a locality or an industry may be deceptive. Individual plants may have more than the average, and many plants may have virtually nothing in stock when the average shows an adequate supply.

(3) Consumers located at long-haul points require larger stocks than those at short-haul points. The greater the distance from the mines to the plant, the greater the chance that its current supply may be interrupted, and the greater the number of weeks' stock which it must keep on hand.

(4) Localities that rely largely on lignite or low-grade bituminous coal, which does not store well, will show smaller stocks than localities where coals of better storing qualities are available.

(5) Larger stocks are needed in the autumn than in the spring and summer. Not only does the rate of consumption generally increase as the weather grows colder, so that the coal required for a week's supply increases, but also the chance of an interruption of shipments from the mines becomes greater.

(6) Interruptions of transportation or stoppage of production act as an incentive to acquire larger stocks. When a man knows that he can get coal easily he has less concern about the size of his storage pile.

(7) Small plants can and ordinarily do carry greater reserves in proportion to their needs than larger plants.

(8) High prices produce irregular distribution of stocks. Prosperous consumers, to whom fuel is a small item, can afford to pay more than consumers to whom coal is a major item of expense or who operate on a narrow margin of profit or a fixed return.

(9) Large stocks held by one class of consumers may fail to compensate for small stocks held by other consumers, even though the average is large. Closing down a public utility may cause great inconvenience and suffering in a locality where many consumers are well supplied with fuel. This principle is particularly effective as regards railroad fuel. The railroad usually gets its coal, but when its stocks are low it must frequently resort to confiscating coal destined to other consumers.

(10) In considering retailers' stocks it must be remembered that the retailer does not consume coal but merely delivers it to others either for their current needs or for storage. Retailers' requirements are therefore peculiarly subject to variation in response to seasonal changes or market conditions.

(11) As the country grows and business develops the tonnage required for a safe reserve increases. Not only are population and the per capita consumption both increasing, but there is a relative increase in the consumption at long-haul points. Every new byproduct oven, for example, is a new stock liability. A three-weeks' stock for the byproduct coke plants now in existence is fully a million tons greater than the same supply for the ovens in operation four years ago.

Northwest Still Fears Winter Shortage

INTIMATION of the coming of winter comes from the Middle West in the form of a renewed demand that more coal be made available in that section. The psychological effect of the passing of warm weather is expected to increase greatly the difficulties under which the Interstate Commerce Commission is laboring. The Public Service Commission of Ohio went so far as to telegraph the commission asking for the immediate suspension of the Lake order.

The only action which has been taken, however, was an effort to speed up the Lake program. The commission's agent at Cleveland has directed that the coal quota on some of the railroads be increased. The operators have doubled up on classification and now are making mixtures of coal in the lower Lake pools, which had not been anticipated under the original Lake order.

The transportation situation during the week preceding this writing was extremely bad, judging from the returns to the various agencies in Washington. In fact the week compares well with midwinter transportation conditions. The principal difficulty is said to lie in the departures which are being permitted from the service orders. This is particularly true with regard to Service Order 15, the open-top priority order. So many cars are being used for road materials, building materials, steel and other classes of freight as to interfere materially with coal production. This has been complicated by the increasing number of assigned cars being used by public utilities and the failure of the railroads to police the orders. The situation has become so bad that the Interstate Commerce Commission has been requested to give an absolute priority on open-top cars for thirty days.

It is stated that the commission may subordinate public utility coal to Lake coal. One of the largest railroads has declined to furnish cars for public utility loading. This line, on its own initiative, is confining its efforts to the movement of Lake coal and railroad fuel.

The frequent changes in the service orders have had the effect of confusing many of the employees of the railroads and as result some of the orders are not being carried out with any degree of regularity. In some cases, it is declared, employees are being induced to furnish cars to those who are not entitled to them.

W. W. Broughton, of Minneapolis, president of the Pittsburgh Coal Co., wired the National Coal Association that all present indications point to a shortage of at least 5,000,000 tons of coal on the docks of Duluth and Superior on Dec. 1. If this is to be relieved from Illinois and Indiana, it will call for 1,100 coal cars a day from Dec. 1 to March 1, in addition to the normal tonnage. Obviously, Mr. Broughton does not regard this as possible.

Rename Mining Experiment Stations

THE Bureau of Mines has renamed its mining experiment stations, giving them names to conform to the district in which located, or to their line of investigations. The names of stations dealing with coal have been designated as follows: Pittsburgh Station, located at Pittsburgh, Pa.; Northwestern Station, located at Seattle, Wash., dealing with coal washing; Central District Station, located at Urbana, Ill.; Southern Station, located at Birmingham, Ala., dealing with coal, coke and byproducts.

"One Big Union" in Alberta to Strike Against United Mine Worker Checkoff

WARS between the unions trouble the mine operators in the Drumheller fields. They have granted the United Mine Workers of America the checkoff, but the "One Big Union" men—Industrial Workers of the World in another guise—resent the compulsory payment of dues to a hostile organization. They promised to quit work on Oct. 1. Meantime the United Mine Workers of America is active, urging that in Alberta as in the United States the contract be reopened and an increase of $1.50 be given to the day wage men.

News from the Capital

By Paul Wooton

Railroads to Begin Delivery of Coal from Mines to Army Bases

ORDERS just issued by the Car Service Division of the American Railroad Association direct the railroads to move coal from mines to army posts under purchases now being made. The War Department is about to enter into various contracts with mines to supply coal for army posts, camps and stations in the Eastern, Northeastern and Central departments.

It will be necessary when these contracts are made and the Interstate Commerce Commission has been notified, to see that the commission's agents under Service Orders Nos. 10 and 11 are instructed that to the extent coal is supplied to the War Department such mines will be relieved from the burden of any allotment made by the agents under these service orders.

I. C. C. Commandeers Coal and Gives It Priority for the Navy

COMMANDEERING of coal by the navy from Maryland and Pennsylvania coal mines for delivery at Atlantic coast ports and orders to railroads for preference and priority in its delivery were issued by the Interstate Commerce Commission on Oct. 1. The President, through the Secretary of the Navy, certified to the commission that "it is essential to the national defense and security" that coal commandeered by the navy should have preference in transportation, whereupon the commission issued the necessary order directing the preferential movement of this coal, and the schedule of companies from whom the coal is commandeered, the amount to be delivered by them monthly under navy orders, the number of cars required weekly for its movement and its destination.

The mines affected are served by the Baltimore & Ohio, Pennsylvania, Cumberland & Pennsylvania, East Broadtop & Cambria and Indiana R.R., and lines connecting with these roads were directed to form routes over which the commandeered coal may move to destinations specified in the order.

New Commerce Commission Order Ends One Assigned-Car Abuse

A NEW rule, effective Oct. 1, governing assignment of open-top cars, was issued by the Interstate Commerce Commission Sept. 28. It provides that private cars and cars placed for railroad fuel loading will be designated as assigned cars. All other cars will be designated as unassigned. Railroads may not assign cars for their own fuel and fail to count such cars against the mine's distributive share unless the entire output of such mine is taken by the carrier for a period of not less than six consecutive months.

Contracts or arrangements for the purchase of coal made by a railroad on or before Nov. 1, 1920, which terminates at the expiration of the coal year ending March 31, 1921, shall be regarded as a compliance with this rule.

The new ruling, designated as Service Order No. 18, is as follows:

It appearing in the opinion of the commission that because of a shortage of equipment and congestion of traffic which continue to exist upon the lines of each and all common carriers by railroad within the United States subject to the Interstate Commerce Act and because of the inability of said common carriers to secure an adequate supply of coal without resorting to the confiscation of commercial coal an emergency exists which requires immediate action;

It further appearing that by the the order of the commission entered the 15th day of April, A.D. 1920, and described "Notice to Carriers and Shippers" rule 8 of Railroad Administration Car Service Section Circular C. S. 31 (Revised) was amended so as to provide that private cars and cars placed for railroad fuel should be designated as assigned cars in accordance with the decisions of the commission in Railroad Commission of Ohio vs. H. V. Ry. Co., 12 I. C. C., 398, and Traer vs. C. & A., 13 I. C. C., 451;

It further appearing that rule 8 of Railroad Administration Car Service Section Circular C.S. 31 (Revised) as amended by the said order has been and is being applied by particular carriers in a manner inconsistent with and contrary to the principles approved in the Hocking Valley and the Traer cases, thereby causing confusion, uncertainty and undue preference and prejudice.

It is ordered that effective Oct. 1, 1920, and until the further order of the commission all common carriers by railroad hereinbefore described be, and they are hereby, authorized and directed to establish and observe the following rule, which is just and reasonable and shall be governed thereby in the assignment of cars:

Private cars and cars placed for railroad fuel loading in accordance with the decisions of the Interstate Commerce Commission in R.R. Com. of Ohio, et al., vs. H. V. Ry. Co., 12 I.C.C., 398, and Traer vs. Chicago & Alton Railroad Co., et al., 13 I.C.C., 451, will be designated as "assigned" cars. All other cars will be designated as "unassigned" cars. Provided that common carriers by railroad may not assign cars for their own fuel and fail to count such cars against the mine's distributive share unless the entire output of such mine is taken by such a carrier for a period of not less than six consecutive months.

It is further ordered that any contract or arrangement for the purchase of coal made by a carrier on or before Nov. 1, 1920, which terminates at the expiration of the coal year ending March 31, 1921, shall be regarded as a compliance with the rule hereinbefore prescribed.

It is further ordered that all rules, regulations and practices of said carriers with respect to car service be, and the same are hereby, suspended and superseded only in so far as they conflict with the provisions of this order.

It is further ordered that the order of the commission made and entered on the 15th day of April, A. D. 1920, hereinbefore described, be, and the same is hereby, rescinded effective Oct. 1, 1920.

And it is further ordered that copies of this order be served upon the carriers hereinbefore described and that notice of this order be given to the general public by depositing a copy hereof in the office of the secretary of the commission in Washington, D. C.

Confer on Supplying Fuel Needs of New England Railroads

NEW ENGLAND railroads continue to be uneasy about their coal supply. Representatives of these lines were in Washington last week conferring with officials as to how their needs are to be taken care of. The railroads form the only group of New England coal consumers which will require special attention during the remainder of the season, it is believed.

Rulings of Importance to Coal Industry To Be Made by Supreme Court

COAL men from various parts of the country are expected to hear the arguments in the U. S. Supreme Court during the week of Oct. 11 on cases testing the constitutionality of the Lever Food and Fuel Act. While cases attacking the Lever fuel control law have not been instituted directly by coal companies, a decision as to the constitutionality of this law will affect such control over coal, hence the interest of coal men in these cases, which are the U. S. vs. Cohen Grocery Co. and H. B. Tedrow, U. S. Attorney for the District of Colorado, vs. the A. T. Lewis & Sons Dry Goods Co.

A number of other coal cases are on the docket of the court for consideration during the current term. Of considerable importance is the anti-trust suit of the Government against the Lehigh Valley R.R., which is up for reargument, previous arguments not having satisfied the court on many points at issue. This case has been pending some time and is an effort of the Government to prevent the Lehigh Valley from further restraining, monopolizing or attempting to monopolize trade and commerce in anthracite coal and to prevent the railroad from transporting anthracite coal in interstate commerce not intended for its use as a railroad. The Government was defeated in the District Court for the Southern District of New York in 1915, and the case is now up on appeal.

Another coal case comes from Colorado, involving a dispute over entry to coal lands in that State. Michael Quinn seeks by mandamus to compel the Court of Claims to allow his appeal in an entry case, the Interior Department having held that lands sought by him were not subject to entry. The Court of Claims dismissed Quinn's petition for refund of purchase money on the ground that his claim was tinctured with fraud.

A North Dakota rate case also pending is a suit by the Merrick Co. to recover from the Minneapolis, St. Paul & Sault Ste. Marie R.R. a sum alleged to have been unlawfully exacted from the company on coal in excess of the legal rate between July 1, 1907, and March 5, 1910, it being charged that the rates were in excess of those fixed by the Legislature of North Dakota in 1907. The lower court held that the Merrick Co. was entitled to recover and the case is on appeal by the railroad. A similar case, brought by the Washburn Lignite Coal Co., also is pending.

Another case is that involving a lien on coal brought by the Piedmont & Georges Creek Coal Co. against the Seaboard Fisheries Co. This is a suit to establish a maritime lien for coal furnished for use by factories and vessels under the act of June 23, 1910, establishing liens. The lower court held that the coal company, having in mind a maritime lien upon the vessels, was entitled to such a lien but the Circuit Court reversed the judgment on the ground that all of the transactions were with the corporation and there could be no holding of the vessels inasmuch as they were not mentioned in the invoices.

A case also pending is one brought by the Government against the Diamond Coal & Coke Co. to void patents to coal lands alleged to have been obtained through fraud by the company. The company admitted the fraud but set up the statute of limitations suit not having been commenced by the Government until thirteen years after the alleged perpetration of the fraud while the statute of limitations bars an action six years after its committal. The lower court ruled that the Government had not proved exceptions from which the United States has taken an appeal.

Irregularity of grant of patent to coal lands is involved in the case of Truman & Ketchum against the Pleasant Valley Coal Co. The District Court issued a decree declaring the coal company to be owner of certain coal lands and the Circuit Court held the grant by one Marx to the patentee to be valid, the deed to the coal company giving him title.

The Lower Vein Coal Co. seeks an injunction to restrain the Industrial Board of Indiana from compelling it to operate under the Workmen's Compensation Act on the ground that it can elect to operate under the act or to respond to suits for damages for its negligence whereby employees are injured as it sees fit. The company attacks the act on constitutional grounds alleging that it deprives the company of property without due process of law and is not only discriminatory but its classification of hazardous industries is oppressive and unjust.

In the case of Henry Friedman vs. the U. S., Friedman seeks to recover money paid for Government coal lands which he claims was in excess of charges for the lands authorized by law. This is an appeal from the decision of the Court of Claims which denied Friedman's right to recovery.

An important case involving strikers is that of the Coronado Coal Co. vs. the United Mine Workers of America. The coal company sought damages for destruction of its property and that of other coal companies by acts of striking miners. To unionize the mines the union members sought to prevent coal being mined, resorting to violence, in which much property of the coal companies was destroyed. Judgment was given the companies for treble damages under the Sherman Act by the lower court, from which the miners appeal to the Supreme Court on the ground that unincorporated unions cannot be sued or be liable for acts committed in a strike. The lower court held that an unincorporated union could be sued by anyone whom it had injured in its business.

Coal rates also are involved in a case by the McGraw Coal Co. against the Missouri Pacific R.R. The coal company obtained recovery of rates paid on coal on alleged violation of the long- and short-haul provisions of the State law. The railroad admitted that the rates were excessive and illegal but questioned the right of the coal company to recover, arguing that only the purchaser of the coal had the right to recover. The coal company contended that it, and not the customer, paid the freight charges on the coal, which contention was upheld by the lower court and which ruling the railroad attacks in appealing the case to the Supreme Court.

Court of Appeals Grants Injunction in West Virginia Profiteer Hunt

JUDGE ROSE, of Baltimore, sitting for Judge B. F. Keller at the Huntington (W. Va.) term of court for the southern district of West Virginia, having declined to grant an injunction to the coal companies under investigation by the Federal Grand Jury on the charge of having profiteered in the sale of coal, an appeal was taken to Judge Jeter C. Pritchard of the U. S. Circuit Court of Appeals at Asheville, N. C. On Friday, Sept. 24, Judge Pritchard granted a temporary injunction to the Argyle Coal Co. restraining the U. S. Attorney for the southern district of West Virginia from prosecuting that company and its representatives. The injunction was made returnable on Oct. 4 and bids fair to stop proceedings against fifty or sixty other companies.

Under an agreement reached on Monday, Sept. 27, between counsel representing the Government and attorneys representing a number of southern West Virginia coal companies, the Government will not make any effort to have returned indictments against companies other than the Arygle until the question of making Judge Pritchard's restraining order permanent can be argued and determined. In the meantime, however, investigation of the books and records of the various companies summoned continues except in the case of the Argyle company. Should counsel for the Government be unable to show cause as to why the restraining order should not be made permanent it will bring the hearings against the various coal companies to an end.

Smokeless Operators Meet

THE Smokeless Coal Operators' Association will hold a meeting at Waldorf-Astoria Hotel, New York, on Oct. 14. The board of directors will meet the day preceding.

Railroads and Operators Move to Meet Critical Situation in the Middle West

RAILROAD executives headed by Daniel Willard, coal operators represented by Colonel Wentz and J. D. A. Morrow, large distributors, Mr. Robbins, director of the Bureau of Service of the Interstate Commerce Commission, together with C. P. White and others of the Lake coal shippers and Chairman Marshall of the Ohio Public Utilities Commission met in Washington on Monday and Tuesday of this week to work out a solution of the increasing difficulties in meeting the Lake program and taking care of essential consumers and retail dealers in the Middle West. It is understood that the meeting was called at the instance of the Association of Railway Executives, who realize that the situation in Western territory is not satisfactory and who are anxious to improve it while good weather lasts.

Public-utility officials in Ohio and Michigan have been apprehensive for some time as to their coal supply with the Lakes getting such a large proportion of the total output, and with the advent of cool weather the domestic consumer has begun to push the retail dealer for coal and the dealer is having trouble to get deliveries with the Lake priority in effect.

One of the most important questions discussed, it is understood, is the program for boosting bituminous coal production to the 12,000,000 ton mark. The meeting was held behind closed doors and represented no unanimity of opinion as to who is to blame for the present situation or as to how conditions are to be corrected, but it is confidently expected that a satisfactory solution will be worked out.

Central Pennsylvania Operators Refuse To Grant a Tonnage Increase

BY a decision of the operators against granting any further concessions to the mine workers the conference in District No. 2 (central Pennsylvania) came to an end Sept. 29. The mine workers had at one time formulated fourteen demands, but these were reduced to eleven and then to three. As the day labor increase of $1.50 a day had been readily granted to accord with the advance in the Central Competitive Region, the advance asked was limited to one on the tonnage rate. This was made equal to that granted the day men. To this demand was added one for an abolition of car pushing and another for ending the collection of penalties for strikes in violation of the contract. Many of the mine workers opposed a strike, and recriminations marked the proceedings of the convention, from which the public was excluded.

Strike Against Subcontracting in Hard-Coal Region Is Resumed

CLAIMING that promises made by the Pennsylvania Coal Co. and the Hillside Coal & Iron Co. to the mine workers in their employ have not been kept, the men, who struck on July 16 last and returned to work Sept. 27, began to quit work almost as soon as they started and on Oct. 3 all who were still working were ordered by their strike leader to quit work on Oct. 4.

It appears that W. P. Jennings promised about Sept. 22 that "in case all of the men decide to go back to work" the company will "give every man the same place that he worked in on July 15, 1920." This was the agreement suggested and even written by the Chamber of Commerce of Pittston and agreed to by W. P. Jennings. Captain W. A. May, the president of the companies, made by letter a further promise that he would have the graft charges probed and would discharge all colliery officials or mine contractors found guilty of graft.

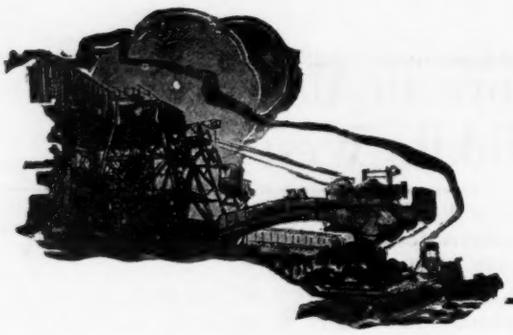
Apparently the Chamber of Commerce and the strikers believed that there were other promises made, some clearly contrary to those above quoted. For instance, the men declared that all subcontractors should be discharged and that all the men returning to work should be given the privilege of working on a tonnage basis. The promise as made in writing is not susceptible of any such interpretation, and seems clearly to suggest that no such understanding existed. Furthermore, the mine workers claim that a promise was made that no state police would be placed round the works. A further understanding alleged to have been made by the company was that all tools lost by the miners during the strike as the result of their being left in the mines would be replaced and that by Oct. 4 a scale would be made for those places now to be worked by contract miners which before were worked by consideration men. Another agreement alleged to have been made was that there would be no discrimination in the distribution of cars and that the checkweighman and check docking bosses elected by the men would be recognized.

When, on Sept. 28, the mine workers found the state police at No. 4 shaft of the No. 7 colliery, at Sebastopol, and noted further that they were exercising their office by arresting Samuel Ruta on a charge of disorderly conduct, they went on strike. The miners at Butler No. 6 and Barnum collieries also struck, asserting that the mine bosses refused to undertake that they would be paid by the ton instead of by the day.

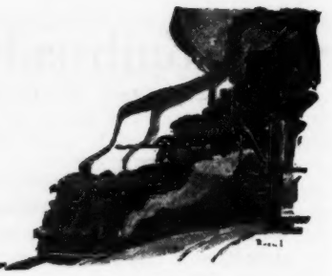
James R. Joyce, chairman of the Greater Pittston Chamber of Commerce, who holds to the belief that the companies made all the promises just described, is backing up the men in their strike and has been since Sept. 28. For one reason and another the number of men on strike has increased and the strike now seems likely to be long and bitterly waged. At last reports the strikers were calling out the pump and fan men and trying to flood the mines and let them fill with gas. Alexander Campbell, president of the miners' grievance committee, says it will now continue till the company agrees to abolish entirely the sub-contracting system. Meanwhile the Pennsylvania and Hillside books are being examined by Judge Tracey, of Philadelphia, and a committee of assistants to endeavor to see if there has been any fraud and, if such should prove to be the case, who are the persons involved.

Williamson Operators Report Increasing Tonnage; Strike Waning

IN SUPPORT of their claim that the strike in the Williamson field is waning operators in that district point to the fact that whereas on July 15 only 107 men were working at the mines affected by the strike of July 1, on Sept. 15 728 men were at work. In further support of their contention the operators state that at the same mines affected by the strike order production in July was 2,852 tons; in August 29,813 tons and for the first half of September 29,224 tons, leading the operators to believe that September production in the strike area would reach 70,000 tons, or just about twice as large a tonnage as was produced in August.



Production and the Market



Weekly Review

INCREASE in production of bituminous coal and a general resumption of work in the anthracite region marked the week ending Sept. 25. Bituminous production was the largest of any week since last January.

Prices are steady in a market of undiminished demand, calls from other sources absorbing what coal has been released by a weaker industrial situation. Labor discontent is still evident in various localities, but these troubles seem to be of a temporary nature.

BITUMINOUS

A general lessening of industrial activities lowered the demand on the spot market. This, however, has been more than offset by lively call for export, which has led the market. Gas coal is in good demand at a premium. Cold weather has brought the domestic consumer into the market and dealers are placing heavy orders to cover.

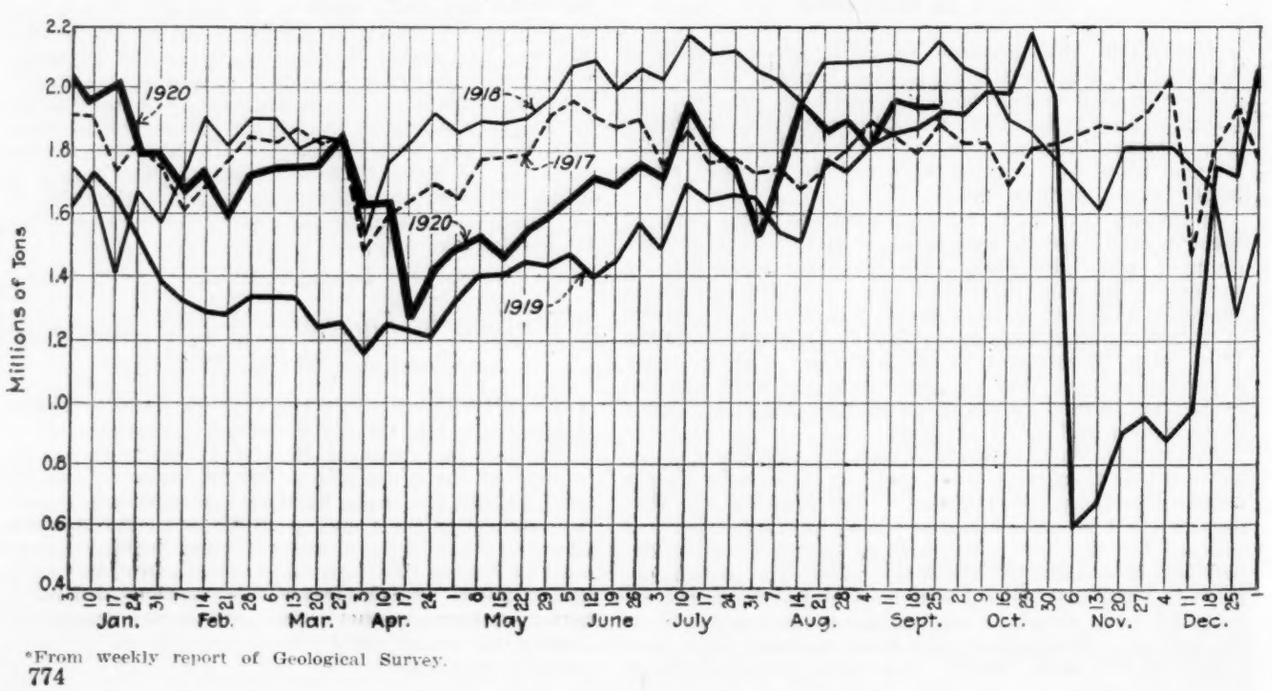
Production Averages 1,969,000 Tons Per Day

Bituminous production for the week was 11,817,000 net tons, according to the Geological Survey. Rate per working day was 1,969,000 tons. Car supply was better in general for this period, the Middle Appalachian and Belleville sections reporting improved placements, Southern Appalachian unchanged, while a decline was noted in the Northern Appalachian district. Labor trouble was a factor limiting production in several fields. According to the review by the Geological Survey, which gives conditions to the middle of September, extensive strikes in western Kentucky, the Williamson field and Alabama were responsible for bringing the average loss of time from labor troubles for the country up to over 10 per cent, compared with less than 5 per cent a year ago. Of the Western fields, Iowa, Arkansas and western Kentucky reported serious losses because of strikes. The time lost on account of labor in Iowa increased from 5.6 to 14 per cent; in Arkansas from 23.6 to 30 per cent. In western Kentucky more than half the capacity was shut down, either on account of labor shortage or strikes. In the East significant labor losses were confined to central Pennsylvania, Virginia the Kenova-Thacker field, and Alabama. In Virginia a loss of 21.5 per cent was ascribed by the operators to labor shortage. The deadlock in the Kenova-Thacker field continued with two-thirds of the capacity closed down by the strike. The second full week of the strike in Alabama brought little change. Reports were received from 130 Alabama mines, which produced 223,000 tons and worked on the average 58.1 per cent of the time. More recently, in the week of Oct. 2, as a result of controversy over the prices for removal of over slate in eastern Ohio, many miners were out and the total time lost is reported as half, with corresponding loss of output. In the same week 23 miles in the Clinton (Ind.) field were closed because of a strike.

New England Movement Declines Slightly

New England demand for bituminous coal has eased off in the last week except on the part of the railroads, which are reported to be short of their desired storage. The part that emergency orders have played in filling the coal bins of New England is indicated by the record of tidewater shipments since the agitation for preferential treatment of this section was begun. From about three-quarters of a

Average Daily Production of Bituminous Coal*



*From weekly report of Geological Survey.

Lake Coal Dumped Season to Oct. 2

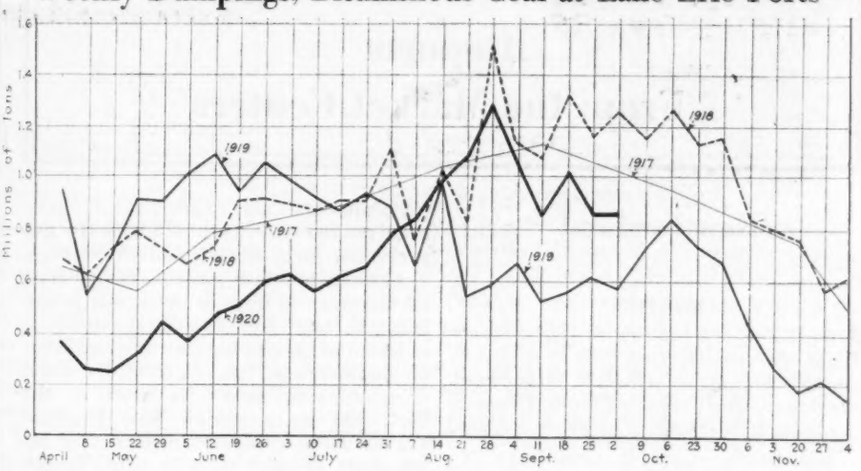
(NET TONS)

	1919	1920
Cargo...	18,208,956	15,203,732
Fuel	855,596	866,061
Total..	19,064,552	16,069,793

Week of Oct. 2, 1920

Cargo	840,330
Fuel	42,249
Total	882,579

Weekly Dumpings, Bituminous Coal at Lake Erie Ports*



*From weekly report of Geological Survey.

million tons in June, tidewater dumping at Atlantic ports destined for New England increased to a little more than a million net tons in July, and were about the same in August, with preliminary estimates for September showing no substantial change from the proceding two months. The average for the four weeks ended Sept. 25 was 272,000 net tons compared with an average of 248,000 tons in the four weeks ended Aug. 28. Three months at the rate of 1,000,000 net tons was well below the rate of 1,250,000 tons asked by New England, but it has been sufficient. Perhaps the reason demand for tidewater coal fell off so rapidly is found in the large movement of all-rail and cheaper coal, for which the demand appears to be holding up. Although shipments through the Hudson gateways fell off slightly in the week of Sept. 25, the average is still above 5,000 cars, or in excess of 250,000 net tons a week, which is at a rate much greater than has ever been attained before for this movement.

Tidewated Dumpings Drop at New York

The movement of tide again declined slightly during the week ended Sept. 25. Total dumpings as reported by the Geological Survey were 24,272 cars, a decrease of 164 cars when compared with the preceding week. The decrease occurred at New York. At Philadelphia dumpings held their own, and at Baltimore, Hampton Roads and Charleston they increased.

CARS OF BITUMINOUS COAL DUMPED OVER TIDEWATER PIERS AT THE FOUR NORTH ATLANTIC PORTS AND CHARLESTON

Week Ended	New York	Philadelphia	Baltimore	Hampton Roads	Charleston	Total
Aug. 28.....	9,927	3,632	3,322	8,320	405	26,116
Sept. 4.....	10,109	3,745	3,191	7,672	358	25,275
Sept. 11.....	8,304	3,421	3,009	7,271	323	22,328
Sept. 18.....	7,966	3,563	4,131	8,501	275	24,436
Sept. 25.....	7,316	3,527	4,238	8,743	448	24,272

The destination of coal dumped at tidewater, so far as known to the railroads handling it, is shown in the following table. Out of a total dumped amounting to 1,277,000 net tons, 264,000 tons went to New England and 582,000 were for export.

TIDEWATER BITUMINOUS COAL SHIPMENTS FOR THE WEEK ENDED SEPTEMBER 26, 1920

Destination	New York	Philadelphia	Baltimore	Hampton Roads	Charleston	Total Dumped
Coastwise to New England.....	96,000	9,000	16,000	143,000	.....	264,000
Exports.....	.....	89,000	145,000	328,000	20,000	582,000
Bunker.....	82,000	9,000	14,000	79,000	.....	184,000
Inside capes.....	.....	29,000	28,000	6,000	1,000	64,000
Other tonnage.....	164,000	.....	3,000	16,000	.....	183,000
Total.....	342,000	136,000	206,000	572,000	21,000	1,277,000

A decrease was reported in the tonnage of soft coal passing the Hudson gateways bound for New England. The total forwarded during the week ended Sept. 25 was 5,387 cars, as against 5,824 during the week before and 5,790 in the corresponding week of 1919.

CARS BITUMINOUS COAL FORWARDED THROUGH HUDSON GATEWAYS DESTINED FOR NEW ENGLAND

Week Ended	1920	1919
September 11.....	5,044	4,795
September 18.....	5,824	4,885
September 25.....	5,387	5,790

Lake dumpings for the week ended Oct. 2 were 882,579 tons as compared with 888,993 for the preceding week.

Navy Priority Request Granted

In connection with the I. C. C. order for preferential movement of coal for the Navy, it was learned that the Navy had requested this order to obtain coal for its ships because under the existing priority order only public institutions and public utilities could be given priority. It was said that the operators concerned has also asked for an assigned car order. Under the Transportation Act the commission may grant priority order for movement of material for the government in case of emergency, which was invoked in this case because of the need of the Navy for coal. The prices at which the coal will be bought are those recently fixed.

ANTHRACITE

A general resumption of work in the anthracite region brought the total production for the week ended Sept. 25 to 1,650,000 tons, or within 168,000 tons of the figure for the last pre-strike week. The upward trend of production will again be halted by a new walk-out of 10,000 Pittston miners. The men are acting in protest against alleged interference by state police, asking fairer treatment by bosses, etc., but the chief issue is the old one of absolute abolition of the contract system. A conference was held in Canton, Ohio, Oct. 5 between the policy committee of the anthracite workers and Secretary of Labor Wilson regarding the re-opening of the wage award.

The Geological Survey points out in the current weekly report that the strikes in the anthracite region in September cost the country about 3,120,000 net tons of total production, which is equivalent to about 1,800,000 to 2,000,000 net tons of domestic sizes. Production from the beginning of the coal year, April 1, is now lower than in any year in the last eight. Already there is fear in some sections of a serious shortage of hard coal this winter and care must be exercised in distribution to prevent the spread of this fear.

Reports From the Market Centers

New England

BOSTON

Price Firm, but Inquiry Is Light—New Wage Discussion Has Not Yet Influenced Buying — All-Rail Movement Slackens—Gas Coals in Strong Demand —Domestic Anthracite in Short Supply.

Bituminous—Current quotations remain firm. Doubtless much of this is due to quiet railroad buying, although such has been largely confined to coal of only average grade. Consumers generally are out of the spot market and only those show any interest who are not getting coal on contracts and did not buy heavily in June and July when prices were at the peak. Throughout New England the market is extremely dull.

The wage discussion is beginning to attract notice. It is realized here that many of the long-established operators are having great difficulty keeping their men and at the same time keeping faith with other operators. The trade will watch proceedings the next fortnight very closely but thus far the demands of the men seem to have caused hardly a ripple here.

Receipts are less both by water and via all-rail. The latter has fallen off materially. There is no longer any fear of embargoes at the Hudson River gateways and spot coal in transit is being absorbed only after much canvassing. Several large utilities have cancelled orders that called for movement in assigned cars and frequently spot quotations are heard at prices not very much higher than the spring contract level.

Several Tidewater piers have lately shown a very marked reduction in the tonnage dumped for coastwise delivery. At Hampton Roads there have been serious cases of delay and much of the coal now arriving here for inland shipment is costing so much that $9 at the mines all-rail looks less like a forbidding figure than it did a short time ago.

Gas-coal shippers have been so hampered by Lake priority and other circumstances that several of the special industries are in straits for late October coal. There has developed an active spot market for the best grades. Prices have risen very near to the $13 mark.

Bituminous prices at wholesale range about as follows for spot shipment:

	Clearfields	Cambrias and Somersets
F.o.b. mines, per net ton	$8.00@ 9.50	$8.50@10.25
F.o.b. Philadelphia, per gross ton	11.62@13.30	12.18@14.00
F.o.b. New York, per gross ton	12.00@13.75	12.65@14.50

Pocahontas and New River have been quoted this week $13.85@$15 per gross ton f.o.b. Boston and Providence.

Anthracite—The outlook for domestic the next 60 days is not at all promising, at least for New England. Much is heard of special action taken in favor of other areas, but distributors seem once more to have lost track of the fact that so much of New England begins using coal early. Effort is being made to catch up with usual season shipments to the Northwest and meanwhile New England is being obliged to wait.

It is difficult to see how there can possibly be much increase in movement to this territory until well into November. It is significant that several barges and tugs belonging to anthracite lines are being put out of commission until coal appears in better volume at the piers.

Tidewater

PHILADELPHIA

Anthracite Trade Is Stirred by Cold Spell — Deliveries by Companies Grow Better — Steam Coal Mostly All Covered — Bituminous Price Fluctuates, with Downward Tendency—Tide Business Moves Forward.

Anthracite—The strongest kind of a demand descended upon the retailers this week with a spell of real fall weather. Fortunately for consumers the mines are again reaching close to the production mark prior to the suspension a few weeks ago.

The Philadelphia & Reading showed a gratifying improvement in deliveries and while the tonnage is still far below what the dealers are asking for, it came just in time to meet the strong demand which suddenly arose. Dealers generally apportioned the coal out to the best advantage.

The credit situation is at this time causing the trade some little thought, especially among the class of people who buy fuel only as they expect to use it. Due to the slackening in industry there is less ready cash on hand than has been the case for the past 3 or 4 years. Retailers are now frequently requested to grant credit but every one is using the greatest caution as they fully realize that shippers are not at all inclined to allow bills to stand.

One of the more important independents has added a slight amount to its prices. However, it is believed now that all circulars are fixed for the winter season.

Stove and nut sizes particularly are in demand but no dealer is able to meet these calls. Bulk of coal received has been pea size and dealers insist on the buyers taking a share of this with some of the larger coal.

The trade is entirely hopeful that it will get through the season in good shape, if the miners continue at work. That phase continues to be a source of anxiety as men having gone to work with the promise that something be done are likely to grow restless if that something is not forthcoming promptly. Already this discontent has caused several thousand miners in the Pittston district to again come out.

The call for steam sizes grows. Most houses have simply refused to make any quotations on buckwheat as they are obligated so far ahead that there is little chance of getting out any extra coal. Rice comes close to the same position. Barley can still be had but soon even this size will be unobtainable.

Bituminous—With reports of strikes and car shortages there are slight increases in spot prices, but the quickness which these subside and a lower level is assumed indicates that a real settling is under way. With the approach of winter this is likely to be gradual.

There is a tendency to softness in Pennsylvania steam coals with prices in Pool 10 $8@$9.50. For a time, at least, it is almost a case of not knowing what the market price is. With so many industries working on short time and even then moving their product at a reduced price, the buyer is quite reluctant to get fuel at the old figures.

Pool 11 for the very top grades has recently been heard of at $9, with shadings well under the $8 mark. In fact, most of the sales on spot coal have been closed at less than that.

Without export trade there is not the least doubt that there would be a bending in the market. This is proven by the way priority orders are being modified or withdrawn entirely. The principal preference orders are now those that cover public utilities and they are being well taken care of.

Gas coals are in greatest demand at this time. Westmoreland and Youghiogheny still bring $10.50@$12 at the mines. Fairmont coals also remain relatively high, Pool 34 selling around $10.75 at the mines and Pool 40 about $10. A good deal of this coal is going to export, yet it is also certain if movement over the B. & O. were in better shape even these prices would be difficult to maintain.

NEW YORK

Dealers and Consumers Are Anxious—Further Mine Complications Upset Expectations—No Fear of Famine—Local Demand for Bituminous Slow — Many Inquiries for Export—Prices Stronger After Wage Negotiations End.

Anthracite—Hope that conditions would soon become normal was again partially shattered when the workers of the Pennsylvania Coal Co., at Pitts-

ton resumed their strike. Shipments were steadily increasing but most of the coal was transhipped by water to New England where there is considerable lack of supply, consequently local dealers did not benefit to any great extent. New England was also receiving a heavy tonnage by all-rail. Considerable tonnage was also sent into Long Island.

With the advent of cooler weather, the trade and consumers are anxious regarding the future. It is not, however, thought that there will be any great difficulty, provided the consumer asks for just sufficient coal for immediate needs.

Quotations for independent coals are no higher than a week back and in some instances have been lower. There is a heavy demand and operators have no difficulty in disposing of their tonnage. Buckwheat is quoted $5.50@$6 at the mine, rice around $4, and barley, which is the longest of the steam coals, $2.25@$2.50.

Quotations for company coals, per gross ton, at the mine and f.o.b. New York Tidewater, lower ports follow:

	Mine	Tidewater
Broken	$7.60@$7.75	$10.21@$10.36
Egg	7.60@7.75	10.21@10.36
Stove	7.85@8.10	10.46@10.71
Chestnut	7.90@8.10	10.51@10.71
Pea	6.10@6.55	8.57@9.02
Buckwheat	4.00@4.25	6.47@6.72
Rice	3.00@3.50	5.47@5.97
Barley	2.25@2.50	4.72@4.97
Boiler	2.50@2.75	4.97@5.22

Quotations for domestic at upper ports are generally 5c. higher on account of the difference in freight rates.

Bituminous—Strengthening of prices which followed the breaking off of wage negotiations is believed to be only temporary. As soon as the situation calms down a further slump in prices in looked for.

Car supply remains good, notwithstanding the return of many empties to the hard coal fields. The slowing up of industrial operations will soon show its effect in reduced consumption of coal. As a rule manufacturers are well stocked and are not now inclined to do further buying until they are better able to judge what to expect in the future.

Coal is being rushed to the Lakes, some mines sending as much as 40 per cent of their output. The situation in New England has been clarified through the co-operation of operators, railroads and distributors. Consumption has been considerably reduced through the curtailing of operations in factories.

Locally the situation is quiet. Demand is not strong for local consumption but is heavy for export. There is also a heavy bunker business.

Small boats are not in great demand, those carrying between 500 and 600 tons or larger being taken in preference.

Quotations for the various grades were stronger at the mine than at this Tidewater. They ranged about as follows: Pool 10, $10@$10.50, Pool 11, $9@$9.50 and Pool 34, $10.75@$11. In the harbor the average quotation for the various grades was about $13.75 alongside.

BALTIMORE

Great Rush of Export Coal — Bunker Demand Is Exceptional — Bituminous Prices Very Firm—Hard Coal Is Scarce —Prices Are Up in Some Cases.

Bituminous—This locality was caught in a great month-end rush of export coal handling, and some records were broken. The last day of September saw 11 vessels loaded and cleared from the piers. The rush brought the export total close to the record figures of August when about 500,000 tons were exported as cargo fuel.

The figures for September will certainly run over the 490,000-ton mark. About 35,000 tons additional were taken as bunker coal by these ships. Of the 86 ships clearing from Baltimore in September, 55 took coal for bunkers, 25 coal burners left here to get bunker coal elsewhere and 6 were oil burners.

The demand for bunkering in general has been so lively as to prevent any possibility of a sag in the strictly local market. Coal on bunkerage shipment under permit is watched so closely and dumped so quickly that those in open market for immediate bunkering must go to general supplies.

The movement of cars from mines to Tide and the supply to the mines of empties on all roads have entered a less satisfactory class, and at the end of the past week the Baltimore & Ohio R.R. was giving only about a 60 per cent run to eastern mines, while daily loadings were only 2,500 cars.

The line price weakness that came with the agreement of West Virginia operators to co-operate with Government agencies to hold down prices was unable to continue in the face of the natural law of supply and demand. At the present time, while not as high as some weeks ago, prices are well maintained.

On the Baltimore & Ohio R.R. and Western Maryland, best coals are bringing around $10 per net ton f.o.b. mines. Even the least desirable coals are worth $8@$8.50 and in some cases up, while intermediate grades are generally $9@$9.50. Best Pennsylvania coals are around $10.50 for the most part.

Anthracite—The fact that hard coal is still very scarce here, despite a somewhat better run recently, was shown strongly in the rush of consumers that has been noted since the cool spell arrived so suddenly.

Some in the trade now feel that a plan of apportionment may have to be worked out. A few dealers are probably taking advantage of the situation and selling coal above the schedule set by the leading dealers. These justify their course on the statement that they have been forced to buy all coal at independent company prices. Nevertheless, the practice is discouraged by the more important handlers, who believe that both dealers and public are best protected by having a uniform schedule.

Lake

MILWAUKEE

Cold Weather Starts Rush of Orders—Anthracite Advanced—Bituminous Receipts Grow More Satisfactory.

October was ushered in by a frigid wave and started a demand for coal from both city and country sources which dealers find it difficult to meet.

The inward movement of hard coal is practically dead at the present time, but bituminous is coming in more satisfactorily than at any time during the year. This is the one ray of comfort to the trade.

While the outlook for the coming winter is somewhat dubious, there are some coal men who scout the idea of anything like a serious famine. The remaining two months of navigation will tell the story.

Receipts of coal by Lake up to Oct. 1 are 583,646 tons of anthracite and 1,466,600 tons of bituminous, against 665,832 tons of hard coal and 2,498,563 tons of soft coal during the same months last year.

There is no change in the soft-coal schedule. Anthracite prices have been advanced $1.15, with indications of further raise, due to increased freights on all-rail coal.

Anthracite prices, f.o.b. dock yards follow:

Stove and nut	$16.20
Egg	16.00
Pea	14.65
Buckwheat	12.50

CLEVELAND

Outlaw Strikes Disturb Production—Lake Quotas Increased as Result of Slumping Shipments — Spot Market Weaker — Retail Prices Unchanged.

Bituminous—Outlaw strikes in the No. 8 District have upset production schedules of operators, and unless the men return to work soon they will check improvement that was being made in fuel conditions in and around Cleveland. Representatives of the conservative miners have voted to end the strike and return to work.

In the meantime, receipts of coal are dwindling. In recent weeks the spot market for No. 8 steam size has been giving ground. The price now is around $8.25@$8.50. Diminished industrial activity, tightness of the money situation and anticipation of lower prices have combined to cause buyers to hold back from dipping heavily into the market. Better car movements have made it possible for industries to depend upon their contract coal in large measure. If production is seriously interrupted by the strike, however, stiffening of price is inevitable.

Pocahontas and Anthracite—Both grades continue painfully scarce, while the demand grows more pressing. Re-

tailers are still waiting for fulfillment of the promise made by operators and railroads some time ago for an increase in shipments. Circumstances have combined to prevent this as yet. It was expected the cutting off of the New England priority would release additional coal for this territory, but seemingly all the surplus is being absorbed by the export trade.

Lake—Increase in the quotas demanded of mines on a majority of the railroads supplying fuel for the Northwest was made necessary by the continued decline in Lake receipts. At no time in September have receipts attained the record established in August. It was seen that the quotas assessed against mines were not supplying the required 4,000 cars daily.

The increase in the assessment averages about 15 per cent. One operator reports that his assessment now amounts to 75 per cent of his output. The railroads also have undertaken to enforce the regulation and to bar the billing of coal to points other than Lake ports until the fixed quota has been met.

Retail prices of coal per net ton delivered in Cleveland are:

Anthracite—Egg $16@$17.50, chestnut and stove $16.25.

Pocahontas — Shoveled lump $16, mine run $12.50.

Domestic Bituminous—West Virginia splint $13.25, No. 8 $12, Millfield lump $14.50, cannel lump $15.

Steam Coal—No. 6 and No. 8 slack $12.60@$12.75, No. 6 and No. 8 mine run $13.60@$14.25, No. 6 3-in. lump $14.45.

BUFFALO

Bituminous Demand Light — Coal Is Hard To Move—Much More Plentiful—Anthracite Picking Up Fast — City Trade Is Short of Coal.

Bituminous—Consumers seen to have plenty of stocks. They sometimes will offer not over $8, while the producer holds out for $8.25@$9. This deadlock is steadily growing worse and it promises to last till the mines cannot be run at a profit on present wages. The miners are uneasy but as things are now turning, they will soon be glad to get present rates of pay.

With the trade as it is the jobber does not dare to buy anything unless he has a ready sale for it.

Not much complaint is heard of car shortage. While they are not really what they should be it is plain that the roads are making all possible effort to meet demands and are succeeding much better. Even the increased movement of crops does not reduce the supply as it usually does. It now looks as if all the difficulty is to be on the price.

The jobber believes that a real break would improve the trade, for as soon as the consumers are convinced that prices will go no lower they will buy liberally. Most of them are staying out of the market as far as high-priced coal is concerned and depending on their contracts.

A little smithing coal is moving, but it is selling at high prices, some Blossburg being reported $11@$12 at the mines. Gas coal is also nearly as high as ever, seldom selling at less than $11. Not much of either is coming this way.

Anthracite—The city consumer is making all possible effort to get a full winter supply, sometimes paying an exorbitant price for it. Miners are at work again and coal is coming this way at a good rate. It is even reported that certain non-union miners, who have been out a long time, are coming back, so that if there is no new disturbance the fall production may be better than the average so far.

Some high prices are still reported. One lot sold at the mines this week at $15 per gross ton.

Lake—Shipments are good again, being for the week 119,350 net tons, of which 40,700 tons cleared for Duluth and Superior, 35,100 tons for Chicago, 16,800 tons for Milwaukee, 11,150 tons for Fort William, 10,000 tons for Port Arthur and 5,600 tons for Ashland.

Freight rates are strong on account of scarce tonnage, 75c.@85c. to Chicago, 70c. to Milwaukee, 60c. to Duluth, Ashland, Fort William and Port Arthur.

Coke—The market is quiet, as the demand is light. Prices have not changed materially, being $18.50 for 72-hour Connellsville foundry, $17 for 48-hour furnace and $14.50 for low grades.

South

BIRMINGHAM

State Control Is Proposed — Railroad Tonnage Is Heavy—Inquiry Holds Up for All Grades—Car Supply Ample for All Operations—Labor Conditions Improving Steadily.

Inquiry for both steam and domestic coal is holding up in a satisfactory manner, demand for domestic grades continuing very strong. There is a slight weakening in the market for steam grades though the tonnage still sought is far in excess of the available supply of free coal.

The probability of the state assuming control over prices and distribution of free coal is no doubt causing some hesitancy in the buying movement. Operators controlling about 75 per cent of the output of this field have proposed a schedule of prices at which they will throw all their output, over contract requirements, into spot trade channels. Such surplus fuel to be distributed to consuming interests by a state fuel administrator to be appointed by the Governor, at prices ranging from $3.50 for Big Seam mine run to $4.50 for Black Creek and Cahaba mine run, a differential of 50c. being proposed for prepared sizes. These figures are practically the same as are now being received on contract deliveries and much less than for spot coal under the stress of competitive bidding. These schedules would be effective during the present coal shortage or during any like condition prior to Feb. 1, 1923 and subject to labor cost adjustments.

All mines have received an ample car supply during the past week and the output will show a material increase. Rail lines continue to confiscate much coal originating on their rails, the Seaboard Air Line R.R. having secured an injunction against the Frisco for taking over fuel coal from a number of mines in the Walker County field with which the former holds fuel contracts and has been unable to get much of the output recently.

The labor situation is very much better than a week ago at almost every point in the district and the strike menace is gradually passing. Many old men have returned to work this week and new labor is also being brought in. Quiet prevails throughout the field.

LOUISVILLE

Demand Is Good—Prices Are Softer—Supreme Court Decision Awaited on Lever Act — Modification of Assigned Car Ruling Is Welcomed.

New service orders of the Interstate Commerce Commission, relative to supplying cars for public utilities, and forcing utilities to quit gobbling coal, have resulted in a little smaller movement to this class and a softer market, as a result of more spot coal being available.

The Louisville & Nashville R.R., announced that it would distribute cars for shipment of spot coal to Kentucky consumers ahead of assigned cars for utilities out of the state. Lake movement will not be affected, but home industries and domestic consumers now stand a chance of securing fuel, of the rules are not again changed. As the situation now stands it looks as though it is an open market again and that utilities will have to buy in competition with others.

Demand continues very good as a whole. Export buying has been light, although some coal is moving through South Atlantic points. Industries of the South appear fairly well stocked. Domestic consumers and retailers are still far from supplied. Railroads are buying well, and are better supplied than for some time past. Car supply is about 35 per cent, and many mines have been idle for weeks under the old assigned car plan.

The refusal to grant an injunction to the Marrowbone Coal Co., against interference and prosecution by Federal officers was expected by many operators. However, it is not believed that there will be much prosecution undertaken until after the Supreme Court decides the constitutionality of the Lever Act, which is expected to take place in October. After reporting fair prices the Covington Jury adjourned until Oct. 12, pending decision of the high court on Sec. 4, of the Lever Act. When the jury re-convenes it plans to ascertain whether compan-

ies have complied with the finding on prices.

That will hardly be necessary inasmuch as coal operators are paying no attention to the prices set. In many cases operating expenses have been running from $4.50 a ton upward, due to the fact that many mines have been getting practically no cars. Most operators are so satisfied that the Supreme Court will knock out Sec. 4, that they are willing to await developments.

Prices quoted in the Eastern Kentucky field show gas, mine run $8.25 @$9.25, steam $8.25@$8.50, block $10.50 @$11.

Northwest

MINNEAPOLIS

Dock Shortage Grows More Serious—High Price-Level Is Maintained—Lake Dumpings Must Be Increased To Avert Shortage.

The trade has been working for 6 months to secure an adequate supply on the docks against approaching winter. Despite every effort which has been made the present situation is, that with less than 60 remaining days of navigation on the Lakes, there is likely to be a shortage of 5,000,000 tons of soft coal.

Anthracite was supposed to be moderately provided. But the recent vacation has thrown things behind there also. With both grades short, there is no chance for any substitution of one for the other.

Prices ranging on soft coal up to $13 a ton add further uncertainty to the situation. Dealers do not dare stock beyond urgent needs on this high priced coal. It is true that any decline at present seems remote. But it does not seem possible for the extreme figures to continue after the panic rush has been supplied. Hence they are seeking to move cautiously.

The announcement has gone forth that the National Association promises sufficient coal for all, available after Dec. 1. The need of this district is before Dec. 1, and calls for adequate cars. Coal available after Dec. 1 is going to help but little toward filling the docks, and unless the coal goes to the docks, it must go right to the dealers bins.

There will be some help if coal is available from Illinois and Indiana mines after Dec. 1, for that is an all-rail source of supply. If cars are available, it will mean some relief from that section. But there is absolutely nothing to base the expectation upon, save this promise. It is doubtless well intentioned, but it makes no coal for this district should it prove impossible to fulfill, which most men in the trade believe it will be.

Operation of the railroads of the Northwest is showing a slight improvement, but far from enough to give assurance of being able to handle the extra tonnage called for. At any rate, it is not the problem of the Northwestern roads but of the Eastern lines running to the lower Lake ports. Unless they can meet the situation, the Northwest will be confronted by the most serious coal shortage in its history.

Inland West

DETROIT

Increasing Demand from Domestic Consumers Follows Cooler Weather—Bituminous Receipts Improve—Some Reduction in Retail Price — Lake Movement Still Inadequate.

Bituminous—The chill of near-winter, has stimulated a more urgent inquiry for coal from domestic consumers, some of whom apparently had been rendered rather indifferent by the reassuring announcements recently coming from Washington. There is a continued active demand also from industrial consumers, many of whom are desirous of building up reserves before cold weather adds to the hazards of transportation.

Shipments of bituminous are still much short of requirements though some dealers report a slight improvement in supply. Jobbers and wholesalers find free coal is almost unobtainable and at times encounter considerable difficulty in providing for the requirements of steam plants dependent on a frequent renewal of supply.

Some interest in the retail trade was created during the week by the announcement of a 10 per cent reduction in price of bituminous to steam and domestic consumers by one of the local firms. A statement accompanying this explained the reduction was intended to offset the effects of a recent announcement from Washington that there would be plenty of coal for everyone at cheaper prices.

The effect, in conjunction with the mild weather then prevailing, was to cause cancellation of a number of orders from local consumers. With the discount offered, Pocahontas that has been quoted $12.50@$16 is made available $11@$12.40 a ton to small consumers.

Anthracite—Shipments are not yet of sufficient amount to assist materially in solving the fuel problem. Retail dealers say they are unable to give assurance of any early improvement in supply or that they will be able to fill orders that have been standing on their books for many weeks. The hope is expressed that anthracite will be available in more liberal supply after the close of navigation.

Lake—Movement of coal over the Lake routes continues to fall short of the 4,000 cars a day regarded as the minimum necessary to provide for requirements of the Northwest. The deficit to Oct. 1, is approximately 3,100,000 tons, compared with 1919.

COLUMBUS

Steam Demand Is Easier—Prices Break—Retail Situation Acute and Prices Are Strong—Lake Trade Progresses.

There has been a slight recession in the extreme high prices for steam grades. This is attributed largely to falling off in demand from large consumers as a result of curtailed operations. The recession is expected to be only temporary however, in view of the colder weather and conditions in the Eastern Ohio field. The trade is still fairly active.

Retailers are now coming into the market in full force. Cooler weather is causing some anxiety among consumers. Dealers are bringing pressure to bear for shipments, claiming that suffering will follow unless something is done to relieve the situation.

Priority orders for the Lakes and public utilities still maintain and only a small tonnage is being shipped to dealers.

Retail prices are still firm. Hocking lump sells $9.50@$11, mine run is $9.25@$10.75. West Virginia splints are selling $10@$12. Pocahontas is still scarce and sells $12.50@$15. Some Kentucky lump is being sold around $11.

Steam trade shows a little easing up because of recession in business and the flooding of certain areas with other coals. Many factories are on part production and this naturally restricts the fuel demand. Railroads are still taking a large percentage of the production. Public utilities are fairly well supplied for the present.

Production has held up fairly well at the levels maintained for several weeks. With the strike in Eastern Ohio the output is restricted far below the 40 per cent mark with indications of even less.

Lake trade is running along smoothly with a good tonnage being moved from Ohio mines. Vessel movement is generally good and little congestion is reported at the lower docks.

Prices at the mines of the principal coals sold in Ohio are:

Hocking lump	$6.50@$8.50
Hocking mine run	6.00@ 8.00
Hocking screenings	6.00@ 7.50
Pomeroy lump	6.50@ 9.00
Pomeroy mine run	6.25@ 8.00
Pomeroy screenings	6.00@ 7.75
West Virginia splints, lump	6.50@ 8.50
West Virginia splints, mine run	6.25@ 8.25
West Virginia splints, screenings	6.00@ 7.75
Pocahontas lump	7.75@ 9.00

ST. LOUIS

Steam Conditions Are Easy and Coal Is Plentiful Locally—Domestic Is Short and Prospects for Future Not Good—Car Supply Poor, and Railroad Demands Heavy — Outlying Districts Are in Bad Shape.

The local steam situtation is easier than for the past three months. Standard screenings off the short line roads are down to $4 at the mine. Two weeks ago they were strong at $6@$7.50. This is brought about partly by the Federal investigation of profiteering in Chicago. The domestic situation is still in bad shape.

There is no anthracite coming in, but such as is here is retailing at about $18 a ton for all sizes. No smokeless was moving in last week. This is retailing at about $16 for lump and egg, which is the price of smithing coal. No coke is available.

St. Louis enters upon the winter months with a somewhat uncertain future. The first touch of cold weather brought a realization of what the city may have to contend with a little later.

Mines in the Standard field are working fairly well but car supply is short. The average working time is 3 days on domestic and 5 or 6 days on railroad coal, which is growing heavier daily, taking the coal away from commercial avenues. In the Mt. Olive field working time has been better.

Carterville field had fairly good working time on all roads, excepting the Iron Mountain and Illinois Central. The Iron Mountain is furnishing but few more cars than they need for company coal. Working time averages between 3 and 4 days in general in this field, with no labor troubles.

Prices in the Standard field for St. Louis are $4@$8 for domestic sizes and as low as $4 for screenings, with outside screenings as high as $6. Similiar prices obtain in the Mt. Olive field, excepting on St. Louis business and contracts, which run $4.50@$5 for domestic sizes. Carterville domestic sizes sell at $4.80@$8, the latter being the price the independent operators are securing. This price is practically obtained in the Duquoin field.

All operators show that they are from 3 to 5 months behind in shipments, with the railroads continuing to demand more fuel daily. The movement of cars is fairly good right now, but there is a lot of bad-order equipment and motive power is not in first-class condition in the Middlewest as a rule.

CHICAGO

Aggregate Demand Still Exceeds Supply — Industrial Curtailment Lowers Steam Demand — Domestic Trade Is Heavy — Illinois Coal Is Strong with No Decline in Sight.

A slight betterment in car supply was not sufficient to ease the local demand. Troubles in the Clinton field in Indiana added to the shortage of available fuel. The industrial demand, however, has lessened considerably. Buyers are not actively in the market, partly because immediate needs are filled, but for the most part due to curtailed operations of plants.

Prices are unchanged, holding firm in the face of heavy domestic demand. Retail dealers have plunged into the open market for prepared sizes, urged by the calls for deliveries on orders placed weeks ago by householders. The advent of cooler weather has caused an insistent demand for immediate deliveries.

Domestic users are becoming convinced that the scarcity of anthracite and Pocahontas will necessitate a substitution and are placing orders for high-grade Indiana and Illinois coals. Little of this is to be had, however, and the retailers are only able to obtain that from the fields of poorer grades.

Apportionment of available stocks has been resorted to by some dealers to relieve the immediate demands made upon them. Should coal be received later in sufficient quantity to fill all orders delivery facilities of the retailers will be taxed to the limit.

Retail prices on southern Illinois coal are $10@$10.75, smokeless, when obtainable went as high as $16.25, delivered. A strong demand for all the Illinois coal that can be produced is indicated by the scarcity of the usual domestic fuels such as smokeless and anthracite. Because of this, there is little likelihood of any early decline on Illinois coal, either for domestic or commercial consumption.

BUTTE

Freight Rates and Labor Increases Add to Cost of Local Coals—Committee Is Endeavoring to Relieve Shortage.

Due to increases in freight rates and labor costs, the price of coal in this state has advanced 25c@$2. The increase is greatest on coal for domestic use.

A year ago San Coulee coal sold at $3.75 f.o.b. mines, with freight to Great Falls of approximately 65c. Mine price is now $4.75 with $1.15 haul, making a retail figure of about $8.50. Mine run has advanced to $6.50.

Bear Creek coal now costs the consumer $12 and little is to be had at that price. Dealers are far short of their normal supplies.

Coal prices in Butte are higher than in most Montana cities. A special committee of the city council has been appointed to ascertain a reason for the wide difference in price, as well as to undertake to relieve the existing shortage.

West

DENVER

Wage Increase Tentatively Accepted by Miners — Demand for Union Recognition Not Abandoned.

One of the serious obstacles threatening interruption of the coal industry in Colorado, particularly in the lignite fields, apparently has been eliminated, in the granting by independent operators of a daily increase of $1.50 to workers and 82c. to "scrapper" boys. It affects about 4,000 miners in the lignite fields, and another 4,000 in bituminous fields.

The advances, retroactive to Sept. 1, have been tentatively accepted by the men through officials of District 15. They demanded an increase of $1.73 during an 8-hour day.

The paramount issue, involving recognition of the union, and made a part of the union demands, has not been abandoned by leaders, and may flare up after Oct. 8, the official date for a show-down under the state industrial law. The agreement was negotiated through the Victor-American Coal Co., and likewise affects 18 smaller companies. These have no contractual agreement with the union at present.

The Colorado Fuel and Iron Co., employing about 4,000 men, has granted its employes an increase of $1.25 a day, corresponding to day work of other companies, under the Rockefeller industrial plan. The union is not recognized. Statements that company employes have asked for a strike vote is being denied by President J. F. Wellborn.

Robert Foster, an international organizer, is urging labor unions generally to contract for the entire output of certain union-controlled mines, the cars to be billed to groups of consumers. Officials of the Colorado Federation of Labor are considering the feasibility of the plan.

Coal prices, in most instances, were advanced early in September, from 30c. to 50c. a ton, in anticipation of the demands of mine workers.

SAN FRANCISCO

Receipts Are Adequate — Prices Have Reached the Peak—Retailers Have Accumulated Some Surplus.

Although railroad cars are not by any means plentiful the Pacific Coast is getting sufficient coal from Utah and Wyoming to answer present demands and to provide a bit of a surplus for the early winter calls. Much of the equipment formerly used in transporting coal to San Francisco has been diverted to other business in the last few months.

Local coal men agree there will be no further advance in prices, saying the "peak" has been reached.

Bituminous prices, f.o.b., mines, wholesale, Utah and Wyoming, per net ton, are unchanged. Stove and lump remain at $5.

Canada

TORONTO

Export Order Amended — Permits To Ship to N. S. Will Be Issued

An order in Council has been issued by the Canadian government amending the order adopted some weeks ago, forbidding the export of coal from Atlantic ports except to the United States and Newfoundland. The new order provides that in the case of each shipment by water to the United States an export permit must first be secured from the Board of Railway Commissioners.

The object, it is explained, is not to restrict exports across the border, but to make consignees satisfy the Board that the coal is really for United States consumption. The issuance of permits will also make it easier for the Board to keep track of the export movements of coal.

News From the Coal Fields

Northern Appalachian

PITTSBURGH

Monongahela R.R. Opening at Both Ends Improves Distribution and Stiffens Market—Export Demand Lighter.

The restrictions placed by the Monongahela R.R. on coal and coke deliveries to the Pennsylvania R.R. whereby deliveries would be made only against equal numbers of empty cars furnished, have been lifted, and there is now a fairly free movement. The coal that had been forced out on the Lake Erie, the other connection of the Monongahela R.R. had depressed the market as noted in last report, and the restoration of normal delivery conditions has since caused this to rebound. Prices are up to where they were two or three weeks ago.

With a continuance of fairly heavy coal production in the Pittsburgh district, and on the whole a slight increase, the failure of prices to settle down to something like a moderate level requires further explanation. This seems to be furnished in the argument that consumers are more eager to buy coal for stocking purposes on account of the near approach of winter.

While transportation conditions are fair at present, it has been the common theory for months that they would grow worse with the advent of winter. There is, however, a slowing down in not a few consuming industries that may in the course of a few weeks lessen the actual demand for coal, so that altogether the market output is rather uncertain.

A decided decline is reported in the export demand for coal and this change seems to balance the fact that the Western Maryland embargo continues, so that while only limited tonnages can be shipped to Tidewater there is also a limited demand. The market for spot coal is quotable $9@$10 for steam and the lower grades of gas and by-product and $10@$11 for best grades of gas and byproduct, per net ton at mine, Pittsburgh district.

CONNELLSVILLE

Offerings and Demand Both Lighter—Pennsylvania Deliveries Difficult—No Interest in Contracts—Spot Market Is Unchanged.

On the whole, the amount of Connellsville coke, both furnace and foundry, available in the spot market is decreased as compared with conditions of two or three weeks ago. There is also somewhat less buying pressure and the two changes appear to balance as the spot market remains as formerly quoted.

While some buyers have dropped out of the furnace coke market in the past few weeks others are buying as much as formerly and those who remain are having somewhat more to say as to prices they will pay.

While the Monongahela R.R. is now making some deliveries of loaded coke cars to the Pennsylvania R.R. without the restriction formerly imposed, that the Pennsylvania furnish an equal number of empties, shipping conditions on the latter are decidedly poor, most of the yards, if not all, being congested and a shortage of motive power being apparent. The Pittsburgh & Lake Erie R.R., on the other hand, is functioning well.

The result of these conditions is a plain split in the market, whereby spot furnace coke by Pennsylvania is quotable at $17 and P. & L.E. deliveries are readily available at $16.50. Sales are reported at $16@$16.25 but seem to cover coke of somewhat uncertain quality.

Demand for spot foundry coke, while generally lighter than a few weeks ago, has picked up somewhat in the past week, the change being attributed to a desire on the part of coke foundries to get a few carloads ahead for the winter.

The spot market is quotable as a week ago at $16.50@$17 for furnace and $17.50@$18 for foundry, per net ton at ovens. Contract coke is unquotable. One or two operators have named asking prices for first half of $14 for furnace and $15 for foundry, but buyers are in no mood to negotiate at this time, particularly as the blast furnace and foundry industries now seem marked for lessened activity in the not distant future.

The *Courier* reports production in the Connellsville and Lower Connellsville region in the week ended Sept. 25 at 202,840 tons, an increase of 1,910 tons. The merchant ovens alone, however, showed a decrease of 5,490 tons, 74,500 tons being produced.

UNIONTOWN

Car Supplies Decline—Coal and Coke Prices Have Advanced—Yard Congestion Clearing.

Still lessened car supply, coupled with an export coal order of some size, combined to boost prices last week. The market tone is firm and slightly bullish. Coke is now $17.50 and $16.75 for Pennsylvania and Lake Erie shipment, respectively, and the remaining three months of the year are expected to guarantee this price with little fluctuation.

At the mines, Pool 44 coal is now $9.50@$9.75 with Baltimore & Ohio and Pennsylvania R.R. Pool 34 coal respectively $10.75@$11 and $10.25@$10.50. By-product coal still holds fast to its $10 figure with no immediate prospect of change either way. P. R.R. steam is now $9, while B. & O. steam has scored a sharp advance to $9.50. This was caused by the export order that accepted best B. & O. steam coal for its requirements.

Estimates of Production

FROM THE WEEKLY REPORT OF THE GEOLOGICAL SURVEY

BITUMINOUS COAL

	1920		1919 (a)	
	Week	Calendar Year to Date	Week	Calendar Year to Date
Sept. 11b	10,685,000	369,258,000	11,046,000	318,410,000
Daily average	2,016,000	1,710,000	1,841,000	1,475,000
Sept. 18b	11,673,000	380,930,000	11,253,000	329,663,000
Daily average	1,945,000	1,717,000	1,876,000	1,485,000
Sept. 25c	11,817,000	392,747,000	11,613,000	341,276,000
Daily average	1,969,000	1,723,000	1,936,000	1,497,000

ANTHRACITE

	1920		1919 (a)	
	Week	Calendar Year to Date	Week	Calendar Year to Date
Sept. 11	546,000	59,160,000	1,408,000	57,376,000
Sept. 18	699,000	59,859,000	1,665,000	59,041,000
Sept. 25b	1,650,000	61,509,000	1,760,000	60,801,000

BEEHIVE COKE

United States Total

Week Ended				
Sept. 25	Sept. 18b	Sept. 27	1920	1919
1920c	1920	1919	to Date	to Date (a)
401,000	403,000	344,000	15,694,000	14,485,00

(a) Less one day's production during New Year's week to equalize number of days covered for the two years. (b) Revised from last report. (c) Subject to revision. All figures in net tons

Car supply continues to dwindle, the Pennsylvania scoring some of the poorest records in many weeks. For four successive days the P. R.R. failed to place a coal car on the Redstone branch and for three days delivered no coke cars to the Monongahela.

On the Monongahela Ry. the Pennsylvania made 35 per cent coal car placement. In the same period the Lake Erie placed over 2,000 cars on the M. R. against requirements of about 2,500. On the Southwest the Pennsylvania made a 20 per cent showing, dropping, however, on the Redstone to less than 10 per cent.

The Pennsylvania placed less than 140 coke cars on the M. R. against meagre requirements of some 380. The Lake Erie, as usual, shouldered the bulk of the M. R. coke demand, placing about 1,500 cars with requirements of 1,200. On the Southwest the P. R.R. placed 40 per cent, falling to 30 per cent on the Redstone. Placements by the B. & O. were very light.

Yards have been slightly cleared this week, Youngwood's total falling from 1,900 to 1,100 and Rainey's from 225 to 135.

FAIRMONT

Car Shortage Grows Worse—Little Available Commercial Coal—Assigned-Car Loading Is Heavy—Railroads Broach Fuel Question—Export Shipments Decline.

For the week ended Sept. 25 there was an extremely poor car supply, production being cut to a point much below that of the previous week. This was due no doubt to the fact that empties which might have been distributed were being diverted to the anthracite regions.

The tonnage of railroad fuel was heavy, loadings being largest when in fact the car supply was shortest. Because of this large tonnage, for a time during the week commercial shipments were extremely limited.

Officials of the B. & O. R.R. and other roads are said to be anxious to make overtures to the coal producers about the question of railroad fuel supplies but inasmuch as the operators have been ignored when making the same suggestion they are in no mood to move with alacrity in meeting railroad officials.

Curtis Bay and other Tidewater shipments were much less in volume during the week, principally because of the limited car supply. While for a time coal was being exported from points off the Mongahela Ry. an embargo was imposed toward the end of the week insofar as shipments via the Pennsylvania and Western Maryland were concerned. It is thought that in view of limited export shipments there might be a slight recession in prices.

EASTERN KENTUCKY

Car Supply Improves—Lake Shipments 3,500 Tons Daily — Demand Is Heavy and Prices Are Unchanged.

Car supply was improved for mines on the Chesapeake & Ohio R.R. during the period ended Sept. 25. During the first four days C. & O. production averaged about 20,000 tons daily.

Between 3,000 and 4,000 tons a day were consigned to the Lakes. The balance of the output for the most part was going to northern and western markets. It is doubtful, however, even in view of improved transportation facilities, if eastern Kentucky mines during the last half of September were producing at the rate of 50 per cent of capacity.

While prices may have been slightly off as compared with those prevailing during August, nevertheless there continued to be a stiff demand.

EASTERN OHIO

Outlaw Strike Cuts Production in Half — Radical Element Is Cause of the Trouble—Miners' Representatives Vote To Return.

Interest in the No. 8 Field during the past week has centered chiefly around the outlaw strike situation. About half the mines in the district have been idle since Monday, notwithstanding a resolution sent to all local unions by district and sub-district officers and scale committee of the United Mine Workers directing them to have their members continue working and to prevent any suspension until after a meeting called for Sept. 29. At this meeting it was proposed to explain to delegates the reason for the union officers' belief that a strike at this time is illegal and untimely. The original number of strikers has increased somewhat each day.

This illegal strike is the result of agitation on the part of the radical element to reopen the existing contract with the operators to secure payment for moving slate less than 12 in. thick. This question was fully submitted to the President's Bituminous Coal Commission and decision rendered by that body that the mining scale always has and does include proper compensation for this work. The radical element, however, recruited a considerable following, demanding further increase in the scale at this time for loading all stone.

The meeting on Wednesday was a stormy one, resolving itself into a contest for control between the officers and outlaws. An agreement was not reached and the meeting adjourned in a near-riot to meet again Thursday.

Late reports indicate an early end of the trouble, when representatives of 5,000 miners voted to end their strike.

Production figures for the week are not available, but will be considerably less than half of normal, as such mines that worked were short-handed.

CENTRAL PENNSYLVANIA

Production Is Slow — Smaller Mines Are Sluggish — Little Adherence to Wage Scale — Domestic Receipts Are Inadequate.

Conditions are not at the present conducive to the rapid supplying of coal either for domestic purposes or for shipping. The wagon mines in the Allegheny mountains which supply Altoona and other towns in Blair County are not being operated to any extensive degree. Trucks hauling coal from the mines for domestic consumption experience much difficulty in getting more than one load a day.

Operators claim they cannot keep the miners at work; that if they could, the entire demand could be filled. Miners are averaging $15 a day in the wagon mines and usually leave the mines before noon. But two of the 17 mines in the Buckhorn district are paying the scale of District 2. The others all pay more.

Following the granting of the increase to day men several weeks ago of $1.50 a day, the price of coal at the mines in Cambria County which supply Altoona and many other towns, was advanced from $4 to $5 a ton and this has been passed to the consumer. Coal in Altoona from the Buckhorn region is selling at $9.

NORTHERN PAN HANDLE

Stone Controversy Curtails Eastern Ohio Production — Northern Pan Handle Industries Affected—Lake Tonnage Is Heavy.

The most important development of the week ended Oct. 2 was a strike of 5,000 miners affecting many of the mines both in the Northern Pan Handle and in Eastern Ohio.

It was estimated that fully 50 mines were closed by the strike, which lasted from Monday until Friday, shutting off to a great extent production of coal and even causing a suspension of work at a number of industries in the Northern Pan Handle. The strike grew out of a demand for pay for stone work, operators declining to accede to the demands made.

Until the strike, mines were operating on about a 70 per cent basis, with a large part of the coarse coal going to the Lakes. There was comparatively little free coal available.

Middle Appalachian

KANAWHA

Cars Are Freer—Lakes Absorb Heavy Tonnage—Strong Demand—No Price Fluctuations.

Rather marked improvement was observed in the transportation situation, at least insofar as the Chesapeake & Ohio Ry. had anything to do with the car supply. Distribution at no time during the week with the possible exception of Saturday was below 70 per cent.

The week was opened with nearly a 100 per cent supply of empties available. Even on Tuesday mines were favored with an 88 per cent supply, 582 cars being loaded at C. & O. mines on that date.

Coal River mines were also favored with a fairly large placement during the greater part of the week. Transportation conditions were not so satis-

factory on the Kanawha & Michigan Ry. Mines on that road had at no time more than a 70 per cent supply and by the end of the week this had declined to 19 per cent.

Western markets received the larger part of the output, approximately one-third being consigned to Lakes. This proportion was even larger on the Kanawha & Michigan.

Renewed demand for Kanawha coal was due to a growing market for domestic, there being many inquiries for splint. Price fluctuations, however, were reduced to a minimum.

NEW RIVER AND THE GULF

Better Car Supply Increases Output—Prices Are Firm with Strong Demand—Tide Gets Heavy Volume of Tonnage.

A better car supply both on the Chesapeake & Ohio and Virginian Railroads made for an increased production in both regions during the period ended Sept. 25. Market conditions were such as to encourage a larger output.

The output of New River was still limited to about 60 per cent of potential capacity and on Tuesday production was as low as 40 per cent.

Not more than 30 or 40 cars of New River coal a day were being shipped to Lakes and no coal was going to New England to speak of, except on contract, the tonnage heretofore consigned to the Northeast finding its way to Tidewater and Inland East points. Inland West shipments were at a minimum. Little change in prices was observed in view of a strong demand in all markets.

Impetus was given production in the Winding Gulf by an improvement in the car supply, though this was more marked on the Virginian Ry. than on the Chesapeake & Ohio R.R.

POCAHONTAS AND TUG RIVER

Car Supply Shows Improvement—Labor Losses Grow—Price Is Held Down—Lakes and Export Tonnage Heavy.

Ground was gradually being regained during the latter part of the month. Increased transportation facilities on the Norfolk & Western R.R. brought about this result.

During the last 10 days of September the car supply made for a larger production in the Tug River field Operators were still experiencing trouble in securing a large and regular turn-out of miners and were somewhat inclined to believe that the increase in wages instead of stimulating the miners to greater efforts was having opposite effect. Labor shortage caused the loss of more tonnage than a scarcity of cars.

There was a healthy demand for the output. Large as was the tonnage going to the Lakes, there was an even larger amount for Tide and for Inland East delivery, suspension of the New England priority being a factor in leading to greater promptness in dumping at Tidewater.

Greater regularity in the operation of Pocahontas mines and a larger production was made possible during the last days of September by an adequate car supply on the Norfolk & Western R.R. The output averaged between 325,000 and 350,000 tons as September ended. Labor shortage here also overtopped car shortage losses.

There was a stiff demand in evidence but producers sought to see that prices were held to a conservative basis. Tidewater shipments were large in volume, although the Lakes and Inland West markets were getting a fair percentage of Pocahontas production.

VIRGINIA

Production Is at 75 Per Cent of Capacity—Car Supplies Are Slightly Improved—Prices Are Firm.

The end of September brought little change in conditions, production still being limited to about 75 per cent of potential capacity. About 30,000 tons, however, were used in the coke ovens. The greater part of the loss in production was due of course to car shortage, though losses from such a source were not quite so heavy at the end of the month as they had been at the beginning.

While there had been a slump in prices for a time and while there had been less activity in spot coal, as the month came to an end prices appeared to be on a somewhat firmer basis, but there was an absence, to a great extent, of the wildly speculative buying which formerly ran prices up to such a high level. The fact that Virginia mines were no longer compelled to ship to New England also gave such mines a broader market.

LOGAN AND THACKER

Production in Williamson Increasing Satisfactorily—Logan Output Declines—Lake Shipments Heavy—Prices Advance Slightly.

A growing production in the Thacker field during the week ended Sept. 25 was met by a lessened production in the Logan region, where the car supply affected the output. Market conditions generally were conducive to large production in both fields.

In the Williamson field there was a marked improvement in production conditions. Output for September was fully twice as large as that for August, owing to the number of additional mines at work.

By the middle of September there were about 750 miners working as against 107 men on July 1. It is estimated that in September 70,000 tons of coal were produced within the strike zone.

Logan mines were unable to produce as much coal as during the preceding week, empties not being so plentiful.

The Lakes were securing a very large percentage of Logan's output, at least during the first three days of the week, when Lake shipments aggregated about 35,000 tons. In addition to Lake, a very considerable tonnage was being sent to northern and western markets. There was a strong demand for steam coal and also for splint. While there was a good deal of fluctuation in prices for mine run spot, the maximum reached was about $9.50, an advance of 50c. over the preceding week's figure.

Southern Appalachian

SOUTHEASTERN KENTUCKY

Assigned Cars Rule the Field—Prices Have Slumped—Labor Situation Is Materially Improved.

Events for the past week and the series of happenings have served to seriously demoralize the market, both as to prices and production. The renewal of the assigned car order has practically cut off production from mines that do not have assigned car business. Many mines are reporting that they have not received cars in more than two weeks. Railroads report that they are barely receiving enough cars to fill assigned car orders and that they have no encouragement to offer as to a better car supply in the near future.

Prices have slumped to a point where some of the "Snowbird" type of mines are barely making expenses. The actual market price is rather hard to state, but quotations for assigned business are about $5@$7 with a still further decline in sight.

Middle Western

WESTERN KENTUCKY

Situation More Promising with Strike Sentiment—Demand Is Good at Firm Prices—Production Is About Normal.

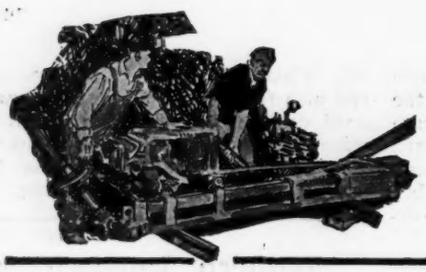
For the past week or 10 days negotiations between operators and union leaders have been going on. A meeting was held at Central City last week by the operators, and a joint meeting at Louisville later. There were further conferences during the week.

Operators have been threatening to bring suit against the unions, under the Danberry Hatters ruling, charging that the miners have violated a contract which was to have run until 1922. At Drakesboro, circulars threatening violence were posted. Union operators repudiated the threats.

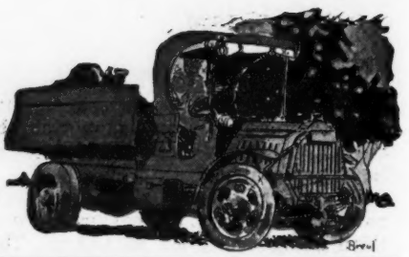
Union officials instructed striking miners to return to work on Monday, following the reaching of an agreement by a committee of operators and men the latter part of the week.

Operations in the field as a whole were not held back, especially in view of the fact that operating mines took all cars available. There was a smaller supply than in August, when strikes in fields North of the river resulted in better local placements.

Prices as a whole are firm with no change shown. Coal is selling $7.50@$8.25 a ton, for all grades. Demand is from railroads, utilities, industrial concerns and retailers for domestic consumption, with a fair movement South.



Mine and Company News



ALABAMA

Birmingham—Nine men have been arrested, charged with complicity in the recent murder of Leon M. Adler, general manager of the Corona Coal Co., who was shot during an encounter with striking miners.

ILLINOIS

Minonk—Work is being pushed at the Minonk coal mine in preparation for the erection of the steel tower, which will take the place of the frame tower recently destroyed by fire. It has been decided to make temporary arrangements to hoist enough coal for local demand.

Duquoin—The Kanawha Fuel Co., of Milwaukee, operating a mine north of this city, has started loading coal from an old slack pile. The coal has been out in the air for over twenty years. The slack pile being within easy distance of a railroad switch, a viaduct was built and the coal is loaded into pit cars and hauled to the track and dumped into coal cars.

INDIANA

New Goshen—The Ft. Harrison Mining Co., is sinking a new mine near its Clovelly operation, south of here. This mine will work the No. 4 vein. Machinery is beginning to arrive, and it is expected to start working entry before the end of the year.

Boonville—Fire of undetermined origin resulted in the loss of the tipple and blacksmith shop of the Erie Canal Coal Co., six miles west of here. The loss is placed at $25,000. The company, which was working on a railroad contract, will rebuild immediately, requiring about three months' time. The mine is owned by Dr. T. D. Scales, William F. and Kenneth Weyerbacher, of this city.

IOWA

Essex—The coal pocket belonging to the Essex Lumber and Fuel Co. has been destroyed by fire. The building was erected seven years ago, and cost several thousand dollars. Owing to the scarcity of coal the building was practically empty with the exception of some slack.

KENTUCKY

Ashland—No time is being lost by S. S. Porter of Ashland in developing coal territory under lease by him on the Right Fork of Beaver Creek. Rails for the new road being built to the tracts under lease have been assembled. Mr. Porter is proceeding with the work of driving an entry for the new mine. Material for the construction of the mining plant is beginning to arrive.

Bastin—The Elkhorn Collieries Co. is having plans prepared for the erection of a new coal tipple on its properties in this district, and installation of machinery will be commenced at an early date. Plans have also been perfected for housing development.

MISSOURI

Jefferson City—Governor Gardner in response to complaints from all over the state has asked the Public Service Commission to work in conjunction with Attorney General Frank W. McAllister to investigate coal conditions and to secure by mutual co-operation, promises from Illinois operators to take care of the actual needs of the eastern part of the state. The same influence may be brought to bear to care for the western part of Missouri in connection with Kansas operators.

MONTANA

Billings—A new branch line connecting with the Billings and Central Montana terminal at Shepherd is to tap a coal field in the Bull mountains believed to be on a par with the Carbon County field. The coal is the so-called Glendive vein. Grading on the new road will be commenced in a short time.

OHIO

Corning—The Faye Coal Co., recently chartered at Columbus with a capital of $150,000 has taken over the mine of the Corning Coal Co. The present capacity is 300 tons daily, which will be doubled in the near future. Output will be sold through the Consolidated Coal Co., of Columbus, of which R. C. Kyle is the head.

PENNSYLVANIA

Johnstown—The Valley Smokeless Coal Co. operating mines in this vicinity has sold its interests to the Weston Dodson Co. The Smokeless company was owned by Brown Brothers & Co., of Philadelphia, and while the consideration was not made public, it was close to the million dollar mark. The output of the mines averages 300,000 tons annually. The company employs normally about 200 miners.

Altoona—While the wagon mines in the vicinity of Altoona are working steadily enough, they have been unable to supply the demand for local consumption. Haulers have increased the price from $6.75 to $8 a ton delivered to the curb. About 600 tons weekly reach the city from these mines.

Uniontown—An explosion of dynamite wrecked the entry to the Boyle Coal Co. mine at Edenborn, 20 miles south of here, near the Fayette-Greene County line. The mouth of the mine was completely closed, tons of earth and rock being brought down by the blast. It is believed at least a dozen sticks of dynamite were exploded.

No motive is known for the dynamiting, although there is said to have been some dissatisfaction in the district. John Boyle, of Scottdale, is head of the company.

Pittston—An effort is being made to compare the record of Michael Hanahue of this city with that of any other miner in the country. He is now retired on pension, but during 40 years of continuous work, working on an average of 200 days every year, Hanahue mined in round numbers, 32,000 tons of coal. He worked over 48,000 hours.

Ebensburg—The Ebensburg Coal Co. has broken ground for the erection of 30 frame dwelling houses at Revloc, twin town of Colver, Cambria County. The homes will be for mine workmen and their families.

UTAH

Park City—Preparations are under way for resumption of work at the New Quincy mine. Supplies are being hauled up and the hoist put into operation at the Little Bell, through which this mine will be developed.

Salt Lake City—Chief Engineer J. N. Paul of the U. S. Bureau of Mines, accompanied by State Coal Mines Inspector C. A. Allen, has made a trip of inspection through Carbon County's coal fields. Mr. Paul came to Utah especially to see the wide veins of bituminous coal here and to note how it is being handled. Utah has the widest bituminous coal veins in the nation, it is claimed, the veins in Carbon County reaching to 32 feet.

The State of Utah is contesting a claim of 160 acres of what is believed to be valuable coal land in Carbon County, George W. House of Long Beach, Cal., being the defendant. Mr. House filed on the land several years ago under the mineral entry. The land was set aside, however, by the government as state school land and the state now seeks to substantiate its claim on the ground that the land was not known to be of a mineral character when it was so set aside.

WEST VIRGINIA

Riverview—The Riverview Coal Co., recently organized, is planning for the development of 150 acres of coal property, to have a daily output of 100 tons. The installation of mining machinery is being arranged.

Clarksburg—Few mines in West Virginia are more completely equipped than the new Lewis mine of the Hudson Coal Co. at Reynoldsville in Harrison County. This mine represents an investment of $500,000, of which $25,000 was expended in the construction of a tipple. Construction work on the mine plant was begun in Feb., 1919. While such construction work was in progress, however, the operation of the Lewis mine was continued. With a new plant ready for operation it will be possible to secure a production of 3,000 tons a day. About 400 miners will be employed. The officers of the Hudson Coal Co. are: C. S. Elliott, Clarksburg, president; J. M. Orr, Clarksburg, vice president and general manager; Harry Sheets, Clarksburg, treasurer; E. M. Pendergast, treasurer.

Charleston—J. B. Hart and associates of Charleston have organized the H. & H. Fuel Co., the capital stock of which consists of 2,000 shares without par value, the company having been organized under the provisions of a recently enacted West Virginia law. The company will operate in Kanawha County.

Capitalized at $100,000, the Pure Coal Co. will undertake the development of coal properties in Woodville district of Lincoln County. Back of the new concern are: I. G. Williams, Spring Hill; J. K. Nelson, Bell; C. H. Williams Cinco; H. B. Gibson, Dante; W. S. Holmes, Charleston

Organized with a capital stock of $200,000, the Eskins Coal Co. plans the development of a tract on a small scale at Chelyan in the Cabin Creek field. Closely connected with the new company are: R. W. Eskins, E. H. Eskins, C. D. Francis, and R W. Francis, all of Chelyan; J. S. Newberger of St. Arbans.

Fairmont people have organized the Howard Coal Co. for the purpose of operating in Marion county, having fixed the capital stock at $75,000. Among those interested in the concern are: W. A. Reed, Clyde A. Cole and C. H. Mardesty, of Fairmont; H. S. Ferguson and C. P. Hood of Shinnston.

Newburg—Following its incorporation, the Raccoon Valley Coal Co. has perfected its organization by the election of the following officers: Francis Borgman, president; J. J. McKane, Jr., secretary and treasurer, and W. F. Horchler, vice president. Others interested in the company are: Thomas Fisher of Tunnelton and J. V. Gibson of Kingwood. The company expects to operate near Newburg.

Kingwood—The Craig Coal Mining Co. will engage in the general coal and coke business, having been organized in large part by Morgantown men, with an authorized maximum capital stock of $200,000. Behind the new company are: C. W. Craig, E. F. Hall, C. E. Hodges, W. E. Arnett, H. G. Hodges, L. S. Core and J. K. Buchanan, of Morgantown, W. Va., and W. O. Barnard of Kingwood.

Wheeling—Mining operations are to be conducted on a large scale in East Wheeling by the East Wheeling Coal Co. in which a number of well known Wheeling citizens are interested. This company has an authorized capital stock of $100,000. Identified with the new company are: H. C. Ogden, H. C. Clark, F. J. McNell and A. C. McNell of Wheeling; H. F. Carter of Elm Grove.

Beckley—The E. E. White Coal Co. is having 6,000 acres of coal land which it has under lease tested for the purpose of ascertaining the coal available in the lower measures. It is stated that the company is testing the various measures down to red shale.

Morgantown—The Penn-Mary Coal Co. is undertaking, on an extensive scale, the building of a number of homes for its officials and employees, the houses to be of the best construction possible. Houses for the officials are to be built at Reedsville, the base of operations of the company. The Penn-Mary Co. is preparing to materially extend its scope of operations.

Industrial News

Pittsburgh, Pa.—The Iron Trade Products Co. announce their appointment as exclusive sales agents for the entire output of coal and coke from the properties formerly belonging to The Westmoreland Gas Coal Co. on the P. R.R. in Westmoreland County and now belonging to J. L. Kendall. Thse properties are producing Pool 61 gas coal and standard furnace and foundry coke.

Chicago, Ill.—Announcement is made by the American Steam Conveyor Corporation of a change in their corporate name to the "Conveyors Corporation of America." The change in name is due to the rapid growth of the corporation, the addition of new lines of business and the purchase at South Bend, Indiana, of a large and completely equipped machine shop to which foundry facilities will be added.

Philadelphia, Pa.—The Fuel Corporation of America has opened an office in Morgantown, W. Va., in charge of C. M. Lyons.

Pineville, Ky.—A report that the Riddle Coal Co., mine agents, were closing the local offices, is denied by D. S. Riddle. The company will continue its activities in Southeastern Kentucky.

Traffic News

The Southern Ry. Co., has since March 1, added 1,093 freight cars to its traffic. including 538 steel frame coal cars, rebuilt from bad-order cars which were unfit for service ,and 555 new steel underframe box cars.

Northwest Freights. An examiner for the Interstate Commerce Commission has been working on the coal freight charges in the Northwest, and has made recommendations for revising the rates to conform to the Minnesota distance tariff. This would mean about 35 per cent reduction to many points and would just about offset the recent freight increase. The rate to the Twin Cities from the docks being based upon the shortest haul, would not be affected.

Interstate Commerce Commission—In a complaint to the I. C. C. the Clay Products Co. of Brazil, Ind., attacks as unreasonable the rates on coal from nearby mines to Brazil during and since Federal control.

The Commission has declined to reopen the case brought by the Wholesale Coal Trade Association of New York, for refund of demurrage charges on coal shipments after the armistice.

The Commission has authorized the Kansas City, Mexico & Oregon R.R. to sell at par, receiver's certificates amounting to $1,000,000, in order to pay for coal and other supplies necessary for continued operation of the road.

Hearing was had by the I. C. C. in the request of Tidewater Coal Exchanges for modification of its order in regard to time for credit on freight. Representatives of the exchanges and railroads pointed out that it takes from 20 to 30 days to get the bills to the members of the exchanges, and argued that members were entitled to 96 hours after receipt of same in which to settle the accounts. No adverse testimony was offered.

The I. C. C. has ordered the Railroad Administration to refund $1,088 to the P. Koenig Coal Co. for excessive charges on coal shipments.

In the case of the Central Steel Co. vs. the C. & O. R.R., a brief has been filed with the I. C. C. by the C. & O. R.R., C. & O. Northern R.R. and Pennsylvania companies, to the report of the examiner which recommends that the rates from West Virgina mines are on a low basis, having been established to enable the operators to secure some of the business of the so-called by-product or special purpose coal in competition with the less distant Pennsylvania and Ohio mines. It also objects to the examiner's recommendation that the commission find that the rate in this case was unreasonable because it exceeded $1.55 per ton. The brief contends for a $1.93 rate.

Pending investigation as to their reasonableness, the I. C. C. has suspended until Dec. 29 proposed increases in rates on coal from North Carolina and Virginia points to Norfolk and Suffolk, Va.

The I. C. C. has discontinued its proceeding as to rates on coke from Virginia points on Interstate RR. Co., it appearing that the carriers concerned have canceled the proposed increased rates and allowed the present schedule to remain in effect.

The I. C. C. authorized coal-carrying roads to waive the collection of the $10 charge per day for storage on open-top cars and cars loaded with coal and coke not released within free time.

In a complaint to the I. C. C. the Southern Fire Brick & Clay Co., of Chicago, attacks as unjust and unreasonable the rates on bituminous coal from Clinton, Ind., and mines in that district and from Ehrmandale and Burnett, Ind., to Mount Silica, Ind.

Tuffli Bros. Pig Iron and Coke Co. of St. Louis in a complaint to the I. C. C. attacks the rates on smithing and coke-smithing coal from the Douglas, W. Va., fields and from Pennsylvania fields to destination on the C. B. and Q. R.R.

Association Activities

Smokeless Operators' Association of West Virginia

The monthly meeting was held on Sept. 9 at White Sulphur Springs, W. Va., the members of the association being the guests of the New River Operators' Association at a banquet held on the night of Sept. 8 at which E. W. Knight of Charleston presided as toastmaster.

Among the speakers at the banquet were J. J. Tierney of Philadelphia, Captain D. H. Barger, J. G. Bradley of Dundon, G. B. Wall of Richmond, Va., E. J. McVann, secretary of the association, and C. W. Dillon of Fayetteville.

At the meeting of the Board of Governors and the general meeting, the question of the commandeering of coal by the Navy formed one of the important topics. A special committee appointed to confer with the Navy Department had met with no success in their efforts to work out a satisfactory plan. The Navy was continuing

to commandeer coal at a rate of $4 per ton. It was pointed out the Navy was commandeering only from such mines as were on its acceptable list. The effect of such a policy, it was explained was to take the tonnage of a comparatively few firms instead of pro-rating the tonnage to be commandeered.

Discussion was also devoted to the subject of a coal supply for Virginia, representatives from the four smokeless districts making reports concerning what had already been done.

Election of officers featured the meeting. All the old officers were re-elected as follows: J. G. Bradley of Dundon, president; Walter H. Cunningham of Huntington, secretary; A. H. Land of Charleston, treasurer.

Representation of the different districts in the Association at the White Sulphur meeting were: John L. Dickinson of Charleston for the Kanawha Coal Operators' Association and the Kanawha Coal Shippers' Association; A. H. Land of Charleston and A. J. King of Huntington for the Logan Operators' Association; M. L. Garvey for the Mason County Coal Operators' Association; G. H. Caperton, S. A. Scott, William McKell and C. P. Musich for the New River Operators' Association; J. J. Tierney and W. D. Ord for the Williamson Operators' Association; E. J. McQuail, J. E. Jones, D. H. Barger, J. J. Tierney, W. D. Ord and W. E. Koepler for the Pocahontas Operators' Association; J. T. Wilson for the Tug River Operators' Association; William Leckie, A. J. King and George Wolfe for the Winding Gulf Operators' Association; E. J. McVann for the Smokeless Operators' Association.

The death of J. S. Richardson of Huntington, assistant secretary of the association, was reported by President Bradley, at whose suggestion a suitable resolution of respect was adopted.

Indications were that the Northern West Virginia Coal Operators' Association, which had given notice of its withdrawal from membership at the Washington meeting, would return to membership.

Northern West Virginia Coal Operators' Association

About 50 members attended a meeting, attracted because of the fact that consideration was to be given to the profiteering proceedings in which many northern West Virginia operators had been subpoened to appear at Martinsburg. Interest in the profiteering probe to be made at Martinsburg was general. Special consideration was given to the procedure to be followed by the operators when they appeared at Martinsburg. While little was given out as to what transpired at the meeting, it is known that the expression was freely made that the Lever Act was so vague in its terms as to make difficult to say just what the law did provide. It was generally understood following the meeting that counsel representing the National Coal Association would aid the operators.

Winding Gulf Operators' Association of West Virginia

A large number of operators were in attendance at a meeting held in Charleston, when the question of an increase in wages for day and monthly men in the Winding Gulf field was given consideration. No request for an increase had been made by the mine workers in the Winding Gulf region—a non-union field, but in keeping with its policy of extending appreciation for the loyalty at all times manifested by the mine workers, the association decided upon a substantial increase, keeping wages still in advance, it was said, of those in union fields.

Publications Received

Stocks of Coal in Hands of Consumers, March 1 and June 1, 1920. Published by the Geological Survey, in co-operation with the U. S. Bituminous Coal Association and Council of National Defense. Contains 2 pages text, 8 figures.

Mineral Resources of the United States in 1919. Geological Survey. Pp. 128, 6 x 9 in.; charts. Preliminary summary, introduction by G. F. Laughlin, statistics assembled by Martha B. Clark. From data furnished by specialists of the Division of Mineral Resources.

Personals

Richard H. Barker, Jr., prominent mine owner and operator in Bell County, Ky., is convalescing from an attack of typhoid fever. Mr. Barker has been confined in his home in Louisville, but is expected to resume his duties shortly.

Chas. Meyers, mine manager of the Kanawha Fuel Co., at Du Quoin, Ill., has resigned. His intentions have not been announced for the future.

Bruce H. Grimm of Fairmont has been appointed superintendent of the Power and Mechanical Department of the West Virginia Division of the Consolidation Coal Co. Mr. Grimm had been acting as assistant to the head of the department, having been associated with the Consolidation Co. since 1914.

S. S. Huber has been appointed Mine Manager of the Ernest Coal Co., operating at Meadowbrook, in Harrison County, W. Va.

John C. Higgins, who has been acting as Superintendent of Mines 22, 43, 63 and 68 of the Consolidation Coal Co. at Monongah, W. Va., has been appointed as Superintendent of the New England, West Fairmont shaft and O'Donnell plants of the company.

John Crawford has been appointed Superintendent of the Oakmont mine of the Abram's Creek Coal & Coke Co. He succeeds **John F. Sommerville,** resigned.

Arthur P. Burdiss has been appointed District Mine Inspector of the 12th West Virginia District, with headquarters at Thurmond, W. Va. He succeeds **M. E. Quenon,** transferred to the 8th District, with headquarters at Charleston. **Inspector William M. Chapman,** who had headquarters at Charleston, has been transferred to the 11th District, with headquarters at London, succeeding **J. G. Vaughan,** resigned.

R. A. Walter has resigned his position with the Woodward Iron Co. of Mulga, Ala., and accepted the position of general superintendent of coal mines with the Wisconsin Steel Co., at Benham, Ky.

R. C. Lawless is appointed deputy commissioner of the Tidewater Coal Exchange, Inc., for the Port of New York, with offices in the Grand Central Palace, New York City.

R. A. C. Magruder is appointed Assistant Commissioner of the Tidewater Coal Exchange, Inc., with office in the Grand Central Palace, New York City.

R. A. Evans has been promoted to mining engineer for the Lehigh Valley Coal Co. in place of **H. Otto,** resigned. Mr. Otto has accepted the position of mining engineer of the Lehigh Coal & Navigation Co. at Lansford, Pa. **L. W. Winters,** formerly division engineer, Luzerne Division, is appointed division engineer of the Lackawanna Division, vice Mr. Evans. **K. F. Arbogast,** formerly Susquehanna Division engineer, will succeed Mr. Winters. **John E. Anderson,** formerly of the mining engineer's department, succeeds Mr. Arbogast.

Thos. B. Powell, for the past few years connected with the Hulburt Oil and Grease Co. of Philadelphia, has been appointed district agent for the Miller Supply Co. of Huntington, West Virginia. Mr. Powell will have his headquarters at Charleston and will look after the Kanawha coal fields for his company.

H. D. Elvidge, since last winter Assistant to the Advertising Manager, Reading Iron Co., was appointed Assistant Advertising Manager in the same company.

William A. Leonard has been elected vice-president and general manager of the Imperial Brass Manufacturing Co., of Chicago, well known makers of Imperial Oxy-acetylene welding equipment, Watrous plumbing supplies, and a general line of automobile accessories and brasswork. Until recently Mr. Leonard was associated with Belding Brothers & Co., of Chicago and New York, as organization and sales promotion manager.

H. B. Hess of Bluefield has been appointed as the Field Manager in the Pocahontas and southwest Virginia fields for the Mathew Addy Steamship and Commerce Corporation.

William W. Miller, formerly general mine manager of the Pittsburgh Mining Co., after spending two years of a well-earned vacation in California, has taken up his residence in Glomawr, Kentucky. He has assumed his duties as general mine manager for the Reliance Coal & Coke Co., Lincoln Coal Co., and the Mitchell-Willis Coal Co.

Ernest Stockton and **E. W. Colegrove,** formerly located in Taylorville and well known in southern Illinois, have purchased a coal yard in Richmond, Indiana, and will now have their headquarters in that city.

C. E. Lesher, editor of *Coal Age,* addressed a large gathering of retailers identified with the Denver Coal Merchants' Association, while in Denver recently. He reviewed in an interesting and instructive manner the important phases of the general conditions leading to the prsent coal situation, making his talk applicable to Colorado production and distribution. His talk was the more important because of his knowledge of Colorado, his home state.

J. R. Pill, who has been connected with the Galloway Coal Co., Corona Coal Co., Alabama Fuel & Iron Co. and other Alabama operations for 25 years or more, has gone to Newfoundland where he will be in charge of coal development work for the Canadian Government.

W. T. Burgess, former safety inspector in the coal mining department of the Republic Iron & Steel Co., has been appointed superintendent of the Palos Division of the company's operations, succeeding **W. W. Kicker,** resigned.

J. W. Bischoff is appointed general manager of the West Virginia Col and Coke Co. with headquarters at Elkins, W. Va.

David L. Wing, recently assistant chief economist with the Federal Trade Commission, announces the opening of an office as consultant on the economics and statistics of commerce and industry; and for research work both in the United States and in foreign countries, especially Latin-American; for the conduct of inquiries and the preparation of briefs of fact and reports for submission to Congressional committees and to federal, state and local commissions and boards, and for use in litigation, 1731 H Street, N. W., Washington, D. C.

Obituary

R. B. Strickland, prominent retail coal dealer of Galveston, Texas, died at his home in that city as result of a stroke of apoplexy. Mr. Strickland was for 25 years associated with the coal firm of E. O. Flood & Co., and was then one of the members of the firm of the Galveston Coal Co., successors to the E. O. Flood Co.

Hubert W. Adams, president of the Southern Fuel Co. of Dallas, Texas, successors to the Texas Coal Co., died at the Biltmore Hotel in New York. Mr. Adams came to Dallas from St. Louis in 1895 and has been prominent in the business life of the city since that time.

George Nasmyth, widely known American sociologist and internationalist, head of the administrative division of the United States Fuel Administration during the war, died recently in Geneva, Switzerland, of typhoid fever.

Thomas Morrison, former Sherodsville (Ohio) citizen and state deputy mine inspector, died recently in his home at Newton Falls.

Coming Meetings

Coal Mining Institute of America will hold its annual meeting Dec. 8, 9 and 10, 1920, in the Chamber of Commerce Auditorium, Pittsburgh, Pa. Secretary, H. D. Mason, Jr., Chamber of Commerce Bldg., Pittsburgh, Pa.

American Mining Congress will hold its annual meeting at Denver, Col., Nov. 15 to 19. Secretary, J. F. Callbreath, Munsey Building, Washington, D. C.

The National Association of Purchasing Agents will hold its annual convention at the Congress Hotel, Chicago, Ill., Oct. 11, 12 and 13. Secretary, L. F. Boffey, 25 Beaver St., New York City.

The Canadian Institute of Mining and Metallurgy will hold its second annual Western meeting at Winnipeg on Oct. 25, 26 and 27; the headquarters of the meeting will be at the Hotel Fort Garry. Local secretary, W. W. Berridge, 905 Union Trust Building, Winnipeg, Canada.

National Conference of Business Paper Editors will hold its annual meeting Oct. 20, 21 and 22 at the Hotel Astor, Broadway and 44th Street, New York City, in conjunction with the annual meeting of the Associated Business Papers. Secretary-treasurer, R. Dawson Hall, 36th St. and 10th Ave., New York City.